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TYPHOID FEVER AND WATER SUPPLY IN CHICAGO.

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The severity of the recent epidemic of typhoid fever in Chicago has given rise to some discussion concerning the relation of the city drinking water to the outbreak, and considerable interest has been aroused in the future possibilities, as well as the present conditions, of drainage disposal and water supply.

The matter is of far more than local concern. The character of the Chicago water supply affects not merely the large body of persons continuously dependent on this supply, but also all those living in the territory immediately surrounding the city and commercially connected with it. In fact, all the communities of the middle west whose citizens visit Chicago at frequent or at occasional intervals are vitally interested in the quality of the Chicago water supply. Not only is the health of individual visitors endangered by a polluted water, but cases of typhoid fever contracted in Chicago may be imported into other towns and serve as new foci for the spread of the disease, thus enlarging the circle of vicious influence to wide limits. A few years ago it was shown on investigation of the origin of an excessive number of deaths from typhoid fever in a small city over a hundred miles from Chicago that more than half of the cases were clearly contracted in Chicago, and that half of the others could be traced to infection in another city that used unfiltered surface water.[1]

The position of Chicago as a railroad center, moreover, entails special and often unregarded responsibility. The tanks of drinking water on the passenger cars which are daily sent out from the city to all points of the compass are often filled directly from the city supply, and if the supply is contaminated one can easily see how infection may thus be spread broadcast among scores of innocent communities.

The special problems of water supply and sewage disposal that confront Chicago are similar to those that must be faced by many other large interior cities in this country, especially those deriving their water supply from the Great Lakes. For this reason, as well as for others that need not be mentioned, the epidemiology of typhoid fever in Chicago can not be looked on as a question of merely local importance.

It is a fact that typhoid fever has for years prevailed excessively in Chicago (Table 1), and that Chicago has apparently suffered from this disease more severely than any other large American city (cf. e. g., New York, Philadelphia and Boston, Tables 2, 3 and 4).

TABLE 1.—TYPHOID FEVER IN CHICAGO,* 1851-1900.

Years.	Population.	Deaths from All Causes.	Typhoid Fever. Number of Deaths.	Typhoid Fever. Per Cent. of All Deaths.	Typhoid Fever. Per 10,000 Inhab.
1851.....	34,000	927	10	1.08	2.94
1852.....	38,734	1,809	48	2.65	12.39
1853.....	59,130	1,325	35	2.65	5.92
1854.....	65,872	4,217	86	2.04	13.05
1855.....	80,023	2,181	43	1.97	5.37
1856.....	84,000	2,086	66	3.16	7.86
1857.....	93,000	2,414	82	3.40	8.82
1858.....	84,000	2,225	49	2.20	5.83
1859.....	94,000	2,008	51	2.54	5.42
1860.....	109,260	2,264	46	2.03	4.21
1861.....	120,000	2,279	74	3.25	6.16
1862.....	137,080	2,835	85	3.00	6.20
1863.....	150,000	3,875	149	3.85	9.93
1864.....	161,288	4,448	192	4.31	11.90
1865.....	178,492	3,663	190	5.19	10.64
1866.....	200,418	5,931	203	3.42	10.13
1867.....	225,000	4,648	165	3.55	7.34
1868.....	252,014	5,884	200	3.40	7.39
1869.....	280,000	6,448	183	2.82	6.54
1870.....	298,000	7,323	268	3.66	9.00
1871.....	334,270	6,976	272	3.90	8.14
1872.....	367,396	10,156	524	5.16	14.26
1873.....	380,000	9,557	272	2.85	7.15
1874.....	395,000	8,075	211	2.61	5.34
1875.....	407,060	7,899	207	2.62	5.09
1876.....	420,000	8,573	168	1.96	4.00
1877.....	439,776	8,026	159	1.98	3.61
1878.....	450,000	7,422	146	1.97	3.24
1879.....	475,000	8,614	208	2.41	4.38
1880.....	503,298	10,462	171	1.63	3.40
1881.....	540,000	13,874	568	4.10	10.52
1882.....	560,639	13,234	462	3.49	8.24
1883.....	580,000	11,555	361	3.12	6.22
1884.....	630,000	12,471	354	2.84	5.62
1885.....	665,000	12,474	496	3.98	7.46
1886.....	704,000	13,699	483	3.52	6.86
1887.....	760,000	15,409	381	2.47	5.01
1888.....	830,000	15,772	375	2.38	4.52
1889.....	†965,000	16,946	453	2.67	4.70
1890.....	‡1,099,850	21,869	1,008	4.61	9.16
1891.....	1,148,710	27,754	1,997	7.19	17.38
1892.....	1,234,740	26,219	1,489	5.68	12.06
1893.....	1,323,100	27,095	670	2.47	5.06
1894.....	1,308,750	23,701	491	2.07	3.75
1895.....	1,366,880	24,319	518	2.13	3.79
1896.....	1,427,590	23,262	751	3.23	5.26
1897.....	1,491,100	21,809	437	2.00	2.93
1898.....	1,557,240	22,747	636	2.79	4.08
1899.....	1,626,410	25,503	442	1.73	2.72
1900.....	‡1,698,575	24,941	337	1.35	1.98

* Based on statistics published in the annual reports and bulletins of the Department of Health of the City of Chicago.

† Large territory annexed in 1899. No population annexed between 1890 and 1900.

‡ The figures for these two years are according to the U. S. census. The population of the intervening years has been estimated by the writer on the Registrar-General's method (Newsholme, Vital Statistics, 1899, pp. 5-6). To the figures thus obtained for 1892 and 1893, 35,000 and 70,000 have been added respectively. Any estimate of the floating population in the city during the year of the World's Fair and the preceding year must, however, be regarded as only approximate.

TABLE 2.—TYPHOID FEVER IN NEW YORK,* 1870-1900.

Years.	Population.	Deaths from All Causes.	Typhoid Fever. Number of Deaths.	Typhoid Fever. Per Cent. of All Deaths.	Typhoid Fever. Per 10,000 Inhab.
1870.....	943,300	27,175	422	1.55	4.47
1871.....	955,921	26,976	251	0.93	2.62
1872.....	968,710	32,647	386	1.18	3.98
1873.....	981,671	29,084	313	1.07	3.19
1874.....	1,030,607	28,727	305	1.06	2.96
1875.....	1,044,396	30,709	376	1.22	3.60
1876.....	1,075,532	29,152	325	1.11	3.02
1877.....	1,107,597	26,203	343	1.31	3.10
1878.....	1,140,617	27,008	321	1.19	2.81
1879.....	1,174,621	28,342	268	0.94	2.28

Years.	Population.	Deaths from All Causes.	Typhoid Fever. Number of Deaths.	Typhoid Fever. Per Cent. of All Deaths.	Typhoid Fever. Per 10,000 Inhab.
1880.....	1,209,268	31,937	372	1.16	3.08
1881.....	1,246,011	38,624	594	1.54	4.77
1882.....	1,283,870	37,924	516	1.36	4.02
1883.....	1,322,880	34,011	625	1.84	4.72
1884.....	1,363,075	35,034	476	1.36	3.49
1885.....	1,404,401	35,682	405	1.13	2.88
1886.....	1,447,166	37,351	433	1.16	2.99
1887.....	1,491,137	38,933	421	1.08	2.82
1888.....	1,536,444	40,175	364	0.90	2.37
1889.....	1,583,120	39,679	397	1.00	2.51
1890.....	1,631,232	40,103	352	0.88	2.16
1891.....	1,680,796	43,634	384	0.88	2.26
1892.....	1,827,396	44,317	399	0.90	2.18
1893.....	1,891,306	44,479	381	0.85	2.01
1894.....	1,957,452	41,175	326	0.79	1.66
1895.....	1,879,195	43,420	322	0.74	1.71
1896.....	1,934,077	41,622	297	0.71	1.53
1897.....	1,990,562	38,887	299	0.74	1.50
1898.....	2,048,830	40,438	376	0.93	1.83
1899.....	2,117,106	39,911	294	0.73	1.39
1900.....	2,053,979	43,227	372	0.86	1.81

* Based on statistics published in the annual reports of the Department of Health of the City of New York.

TABLE 3.—TYPHOID FEVER IN PHILADELPHIA,* 1870-1900.

Years.	Population.	Deaths from All Causes.	Typhoid Fever. Number of Deaths.	Typhoid Fever. Per Cent. of All Deaths.	Typhoid Fever. Per 10,000 Inhab.
1870.....	674,022	15,317	409	2.67	6.06
1871.....	700,000	15,485	313	2.02	4.47
1872.....	725,000	18,987	369	1.94	5.09
1873.....	750,000	15,224	364	2.39	4.85
1874.....	775,000	15,238	461	3.02	5.95
1875.....	800,000	17,805	420	2.36	5.25
1876.....	825,594	18,892	761	4.03	9.22
1877.....	850,856	16,004	542	3.39	6.37
1878.....	876,118	15,743	404	2.57	4.61
1879*.....	901,380	15,473	344	2.22	3.82
1880*.....	846,980	17,711	498	2.81	5.88
1881*.....	868,000	19,515	654	3.30	7.43
1882*.....	886,539	20,059	650	3.24	7.33
1883.....	907,041	20,076	579	2.88	6.38
1884.....	927,995	19,999	662	3.31	7.13
1885.....	949,432	21,392	610	2.85	6.42
1886.....	971,363	20,005	618	3.09	6.36
1887.....	993,801	21,719	621	2.86	6.25
1888.....	1,016,758	20,372	785	3.85	7.72
1889.....	1,040,245	20,536	736	3.59	7.07
1890.....	1,046,964	21,732	666	3.07	6.36
1891.....	1,069,264	23,367	684	2.93	6.40
1892.....	1,092,168	24,305	539	2.22	4.93
1893.....	1,115,562	23,655	456	1.93	4.09
1894.....	1,139,457	22,680	369	1.62	3.24
1895.....	1,163,864	23,797	469	1.96	4.03
1896.....	1,188,793	23,982	402	1.67	3.38
1897.....	1,214,256	22,735	401	1.76	3.30
1898.....	1,240,266	23,790	639	2.69	5.15
1899.....	1,266,832	23,796	948	3.98	7.48
1900.....	1,293,697	25,078	449	1.79	3.47

* Based on statistics published in the annual reports of the Department of Health of the City of Philadelphia, in which also appear the irregularities in the population during the years 1879-82, which we copy.

TABLE 4.—TYPHOID FEVER IN BOSTON,* 1870-1900.

Years.	Population.	Deaths from All Causes.	Typhoid Fever. Number of Deaths.	Typhoid Fever. Per Cent. of All Deaths.	Typhoid Fever. Per 10,000 Inhab.
1870.....	250,526	6,098	168	2.75	6.71
1871.....	258,032	5,888	176	2.99	6.82
1872.....	265,764	8,090	229	2.83	8.62
1873.....	321,200	7,869	243	3.09	7.56
1874.....	331,395	7,812	202	2.58	6.10
1875.....	341,919	9,060	227	2.50	6.64
1876.....	346,004	8,253	145	1.75	4.19
1877.....	350,138	7,316	156	2.13	4.46
1878.....	354,322	7,636	120	1.57	3.39
1879.....	358,554	7,398	119	1.61	3.32
1880.....	362,839	8,531	154	1.80	4.24
1881.....	368,190	9,016	207	2.29	5.62
1882.....	373,620	8,995	212	2.36	5.67
1883.....	379,129	9,740	198	2.03	5.22
1884.....	384,720	9,622	216	2.24	5.61
1885.....	390,393	9,618	152	1.58	3.89
1886.....	401,374	9,268	135	1.46	3.36
1887.....	412,663	10,073	183	1.82	4.43
1888.....	424,274	10,197	170	1.67	4.01
1889.....	436,208	10,259	186	1.81	4.26
1890.....	448,477	10,181	155	1.52	3.46
1891.....	457,772	10,571	154	1.46	3.36
1892.....	467,260	11,236	137	1.22	2.93
1893.....	476,945	11,710	148	1.26	3.10
1894.....	486,830	11,520	141	1.22	2.90
1895.....	501,083	11,329	163	1.44	3.25
1896.....	516,305	11,634	162	1.39	3.14
1897.....	528,912	11,154	173	1.55	3.27
1898.....	541,827	10,886	185	1.70	3.40
1899.....	555,057	11,167	195	1.48	2.97
1900.....	560,892	11,678	143	1.22	2.55

* Based on statistics published in the annual reports of the Health Department of the City of Boston.

The marked and constant excess of typhoid fever in Chicago which is shown in Table 1 has been generally attributed to the pollution of the city water supply.[2] Since a very early period in the history of the city the extraordinary practice has prevailed of allowing a portion of the sewage to flow into Lake Michigan, which has been at once the recipient of the city refuse and the source of the city water supply. A large number of the city sewers have for some time emptied into the small stream known as Chicago River, which on this account has achieved a widespread and unenviable notoriety. As long ago as 1865 the uneasiness that was naturally felt regarding the effect of such conditions on the public health led to the use of a pumping station at Bridgeport, situated at the junction of the Illinois and Michigan Canal with the south branch of the Chicago River. This station was originally established simply for supplying water to the canal, but in the year mentioned the Board of Public Works made arrangements for utilizing the pumping works to cleanse the river, and up to the year 1900 the river water, which in late years has been practically crude sewage, was more or less regularly pumped into the canal. The capacity of the pumping works was enlarged from time to time to keep pace with the growth of the city and the attendant increase of pollution, and as an additional precaution the water tunnels were pushed further and further out into the lake in the hope of escaping the sewage outflow. Both these means failed, however, to give more than a temporary relief. The working of the pumps at Bridgeport had the effect under ordinary conditions of reversing the flow of the Chicago River and of causing a sluggish current to set away from the lake. Occasionally, however, the pumps were unable to cope with variations in the lake levels, and the floods caused by sudden and heavy rains flushed far out into the lake the unspeakable filth of the Chicago River. The results of this critical situation might have been, and indeed were foreseen. On more than one occasion Chicago has suffered severely from typhoid fever, a disease known to be caused by polluted water. One of the most serious epidemics occurred in 1891, when there were 1,997 deaths from typhoid fever in twelve months, a number larger than that occurring during the same period in the state of New York with a population five times as great. The death rate from typhoid fever in Chicago in 1891 was seven times as great as that in the city of New York and eleven times that in the city of London. From the year 1892 up to the present year no epidemic of such alarming proportions has visited the city, but the death rate from typhoid fever and kindred diseases has remained persistently high, and on several occasions, especially in the seasons of heavy rains or melting snow, miniature epidemics have unduly swollen the death rate for a few months. The recent epidemic has proved the most extensive that has occurred since 1892, and is one of the worst that the city has ever experienced.

TABLE 5.—DEATHS FROM TYPHOID FEVER IN CHICAGO BY MONTHS.

Month.	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
January.....	53	67	311	41	46	30	87	38	29	44	23	26	21
February.....	136	61	187	30	26	21	89	46	32	24	14	16	14
March.....	103	71	76	41	27	26	65	41	71	18	27	15	20
April.....	45	136	56	58	30	30	33	19	94	23	23	20	16
May.....	82	408	70	56	31	30	31	13	67	25	19	24	24
June.....	107	167	55	60	31	18	44	23	35	28	17	9	22
July.....	86	200	211	55	37	36	58	27	55	41	26	55	44
August.....	115	182	179	76	52	59	64	42	45	62	34	83	193
September.....	95	198	138	86	71	76	87	48	65	58	34	74	165
October.....	72	171	92	81	68	90	89	61	62	44	38	102	78
November.....	67	150	67	43	38	60	60	44	56	43	39	54	.
December.....	47	186	47	43	34	42	44	35	55	32	43	31	.
Total.....	1008	1997	1489	670	491	518	751	437	636	442	337	509	

It will be noticed (Table 5) that in August and September of the present year 358 deaths were recorded.

a number somewhat larger than the total reported for the whole twelve months of 1900 (337). The deaths in August, 1902 (193), exceeded the number reported for any month since July, 1892 (211).

The epidemic of 1902 has caused much surprise and some consternation among the citizens of Chicago for the reason that the opening of the Drainage Canal was very generally regarded as marking the close of the excessive water pollution that had previously existed. As is well known, the canal is designed to conduct into the Illinois River the sewage of Chicago, diluted to such a degree with the pure water of Lake Michigan as to occasion no danger or inconvenience to the inhabitants of the Illinois valley. To this end the Chicago River, into which most of the sewers still empty, is made the main feeder of the canal, and a steady current away from the lake is produced in the river by gravity flow. The velocity of the flow is regulated by controlling works at Lockport, some thirty-three miles from the mouth of the river. The canal was opened early in 1900, and the belief that typhoid fever would never again prevail so extensively as in the past received almost immediate support in the low death rate from typhoid fever that was recorded in that year. In 1900 the typhoid fever death rate was the lowest that had ever been reported (1.98) in the sanitary history of the city (Table 1), and the total number of deaths from typhoid fever was smaller (337) than in any year since 1880, when the population of the city was less than one-third as great as in 1900. This low death rate, which followed the opening of the canal and was accompanied by a visible improvement in the Chicago River, naturally encouraged the feeling that great epidemics of typhoid fever in Chicago were not likely to recur, and that a marked and permanent improvement in the water supply had been effected.

As a matter of fact these sanguine expectations were not wholly justified by the conditions of drainage and water supply that obtained in 1900, and, indeed, still persist up to the present time. Through a lack of foresight and co-ordinated endeavor on the part of the responsible authorities, a large part of the sewage system of Chicago remains at this date unconnected with the Drainage Canal. An "intercepting sewer" is in process of construction along the lake shore in the southern section of the city, and another (the Lawrence Avenue sewer) north of the Lincoln Park district. It is said that the latter will be finished within a short time, but that the sewer running from the neighborhood of 39th Street to 87th Street will require several years for completion. Meanwhile a population of more than two hundred thousand, closely fringing the lake front, will continue to drain into the lake and pollute the water supply with crude sewage.

The accompanying diagram (Fig. 1)* illustrates with sufficient vividness the present relations of drainage and water supply. The shaded portion represents the territory now draining into the sanitary canal. It is evident that under the existing circumstances the occurrence of a sudden and heavy rainfall may be sufficient to lead to the mingling of a large amount of fresh sewage with the lake water. Until such time as the intercepting sewers and the connecting 39th Street sewer are completed and the pumps at 39th Street are in working order little relief from this situation can be anticipated.

Doubt has been expressed in some quarters as to whether the recent outbreak of typhoid fever was in reality due to the water supply, and the opinion has been advanced that other factors should be sought for. The especially severe incidence of the disease on some of the congested districts of the city has been thought by some to point to a more localized cause for the epidemic. Apart from the facts already set forth regarding the abundant opportunities that exist for the entrance of fresh sewage into the drinking water, there are certain other considerations which indicate unmistakably that the outbreak was primarily, at least, of water-borne origin. In the first place the dimensions of the epidemic and the fact that all sections of the city have suffered seriously, if not perhaps equally, must, on epidemiologic

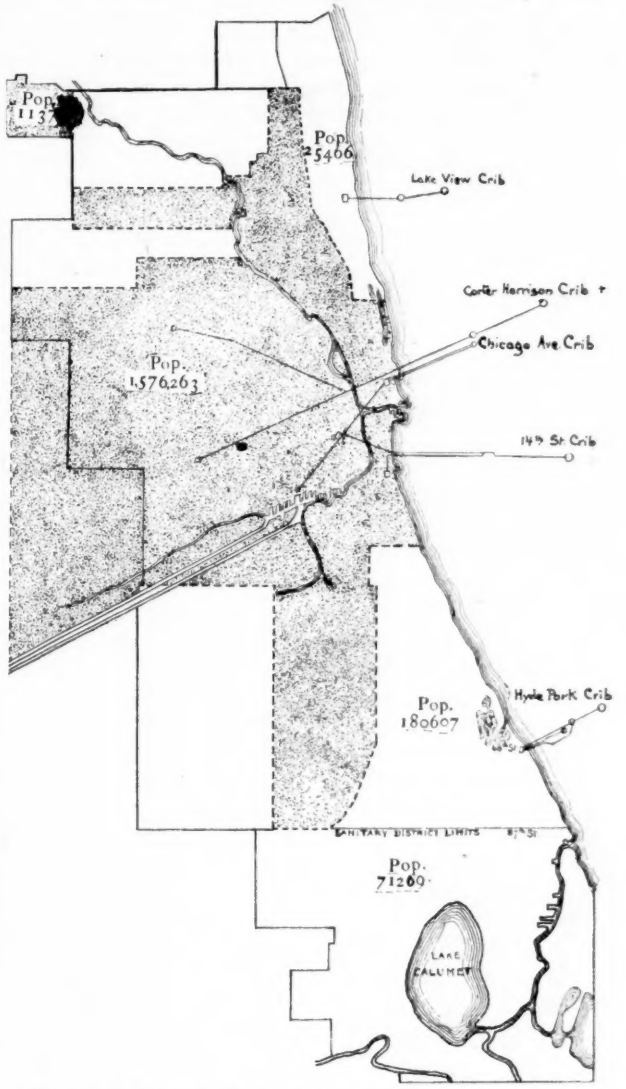

Fig. 1.—Map of the City of Chicago, showing the districts draining into the Sanitary Canal. Oct. 1, 1902.

grounds, be looked on as convincing evidence of water infection. Epidemics of typhoid fever due to infected milk, to oysters or to other raw foods are more limited in character, and rarely if ever involve large masses of population. There seems to be no instance on record where a large city possessing a pure or purified water supply has experienced an epidemic of typhoid fever of the proportions of the one that has just visited Chicago. The low and relatively uniform death rate from typhoid fever in Berlin, London and Vienna, all cities which possess good water supplies, may be contrasted with the violent fluctuations in the death rate from this disease in Chicago and Philadelphia (Fig. 2).

* I am indebted to Prof. J. H. Long for the material from which this figure was constructed.

The majority of typhoid fever epidemics both large and small are due to water infection. Schüder[3] has recently collected information concerning the etiology of 650 separate outbreaks of typhoid. Over 70 per cent. (462) of these were outbreaks caused by water, and if the number of the persons affected in the various outbreaks had been enumerated the proportion of individual cases due to water infection would doubtless have been found even higher.

It is probably true that typhoid fever is sometimes spread by means of infected dust. The experiments of Firth and Horrocks[4] indicate that from ordinary soil, allowed after inoculation with the specific bacillus to become so dry as to be readily blown about as dust, the bacillus can be recovered as late as the twenty-fifth day after inoculation, and the authors conclude that typhoid infective material can be readily translated from dried soil and sand by means of wind and air currents. In

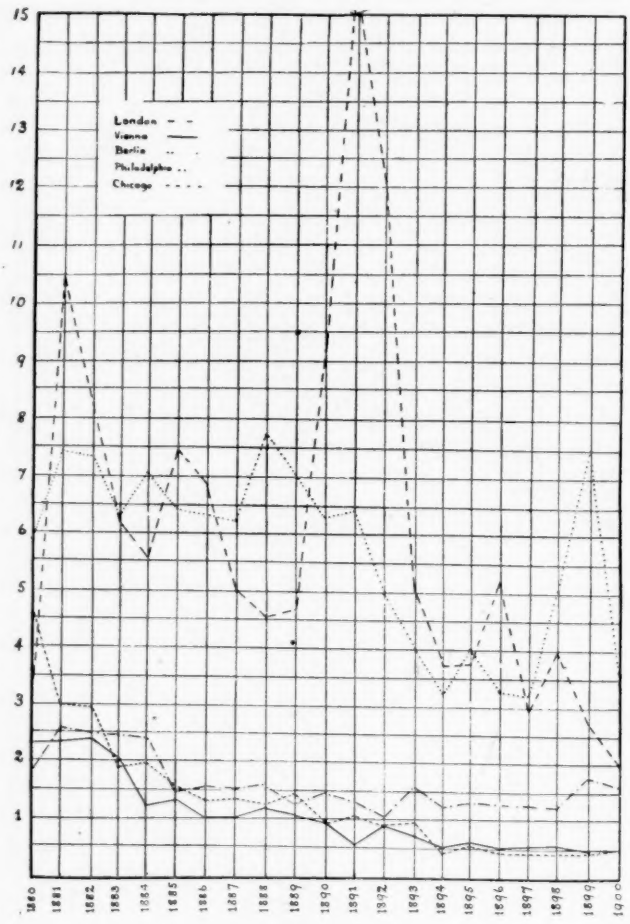

Figure 2.

connection with the present outbreak in Chicago, the definite hypothesis has been advanced that the flooding of cellars and basements from overcharged sewers—an incident said to have happened in many parts of the city—has led to the introduction of typhoid bacilli into dwelling houses. It is conceived that with the receding of the waters the stranded typhoid germs might pass into the air and be inhaled by the inhabitants of houses thus affected. This view does not seem to be supported by any epidemiologic evidence, since it has not been shown that any more cases of typhoid fever have occurred in houses with flooded basements than in more favorably situated dwellings. While dust infection is indeed a possibility, few outbreaks from this source have ever been clearly traced. The experiments of Neisser[5] indicate that a velocity of 1.7 cm. per second is necessary to raise the typhoid bacillus in dust to a height of 80 cm., and according to Flügge[6] the currents of air in closed apartments do not attain a velocity greater than ¼ mm. Dust infection in houses, then, must be extremely rare, and this explanation is hardly to be resorted to in the case of an extensive city epidemic. It is probable that some of the outbreaks that have been at times attributed to dust carriage may be more reasonably traced to the agency of flies,[7] which, as is well-known, are capable, after visiting infectious material, of readily infecting various foods on which they may alight. It is stated on good authority that unclosed privy vaults and cesspools are still allowed to exist in some of the most densely populated districts of Chicago, and if this is the case it is certainly possible that in the recent epidemic flies may have had much to do with the incidence of the disease on the poorer quarters of the city.

Among other causes which have been suggested to account for the epidemic is an unusual infection of vegetables, of milk, and of other foodstuffs. It can not be doubted that some of the cases of typhoid fever occurring from time to time in every large city are due to this cause, but here again it is difficult to understand how even extraordinary accidents affecting milk and food could lead to the sudden and almost simultaneous infection of several thousand persons in different sections of the city. As a matter of fact, there is every reason to anticipate that minor epidemics of typhoid fever due to infected milk, to infected raw vegetables, to the agency of flies and other insects, and to what has been called secondary infection will follow in the wake of a great outbreak. A striking instance of the way in which typhoid fever may be perpetuated and disseminated in a community with naive or unsanitary habits of life has been described by Sedgwick.[8] In the words of this writer: "It is easy . . . to understand how dirt, diarrhea and dinner too often get sadly confused." Whenever a large number of cases of typhoid fever exist in a community the superabundance of infectious material naturally increases the opportunities for diffusion. The chances that milk supply or food supply may become a source of infection are plainly greater at the time of an epidemic than when the disease is comparatively rare. It is unquestionably correct to recognize the danger of spread by secondary infection, by the agency of flies and by infected raw foodstuffs, but these factors, important though they are, play a subordinate rôle as compared to water infection.

If Hamilton's law of parsimony can be properly applied to epidemiologic matters, there is no question as to what is the most reasonable explanation of the recent outbreak of typhoid fever in Chicago. While some of the factors just enumerated perhaps contributed to the high death rate during August and September, there is no reason for considering any or all of them as the primary cause. The known and universally admitted facts regarding the water supply are of such a character that the excessive pollution of this supply through the unusually heavy rains of June and July furnishes a sufficient reason for the outbreak.[9] Since there is at hand an explanation so simple, so in accord with the general experience regarding extensive epidemics of typhoid,[10] and so consonant with the past experience of Chicago itself, it would seem logically unnecessary to seek for another cause.

As has already been stated, the completion of the intercepting sewers, which will conduct into the Drainage Canal the sewage of a population aggregating 180,000 in the vicinity of the Hyde Park water intake, and that of a population of 25,000 in the neighborhood of the Lake View water intake, will lead to material improvement in the character of the supply (see Fig. 1). It may be taken as axiomatic that when a large amount of sewage is kept out of a public water supply typhoid fever will be less prevalent in the community served by that supply. It can not be forgotten that the lowest death rate ever recorded from typhoid fever in Chicago was in 1900, immediately after the opening of the Drainage Canal (Table 1), and that during the first six months in each of the three years 1900, 1901 and 1902 the deaths from typhoid fever were less numerous than for any similar period during the preceding decade (Table 5). No one will question, therefore, that the opening of the Drainage Canal has already effected a definite improvement in the quality of the water supply, and through that in the typhoid fever death rate. It may be confidently expected that when the population of 200,000 which now drains into the lake (Fig. 1), and which is so close to the lake front that its drainage must reach the lake in a fresh condition and therefore be peculiarly dangerous, becomes properly connected with the canal the deaths from typhoid fever will diminish still further. It is certainly singular that the present situation should not have been foreseen and guarded against. The excuse for allowing a large portion of the population, constituting from its topographical position the greatest menace to the city water supply, to pour fresh sewage into the lake for upward of three years after the completion of a great and enormously expensive sanitary undertaking can hardly be adequate.

While it is generally known that the acutely dangerous situation represented by the map (Fig. 1) is only temporary, it is not so widely understood that even the completion of the intercepting sewers will not mark the final solution of the water problem for Chicago. No one familiar with the general sanitary history of water supplies can expect that all chances for water pollution will cease with the completion of the sewerage system. The lake water near the intakes will still be exposed to possibilities of infection from passing vessels, from excursion steamers, from bathers and other sources. It might perhaps be supposed that these sources of contamination could be safely neglected, but when it is remembered that typhoid bacilli may persist in the urine far into convalescence and that as many as 172,000,000 individual germs have been found in one cubic centimeter of the urine,[11] it is evident that a single discharge of urine from a typhoid fever convalescent might render many gallons of water capable of conveying disease. The famous Plymouth epidemic,[12] in which 1,104 persons contracted typhoid fever and 114 died, was caused by the discharges from a single case of the disease, and the infectious material, moreover, had to pass through three storage reservoirs with a combined capacity of 5,000,000 gallons. Practically all unfiltered surface waters are at the mercy of accidents of this character, and the possibility of occasional infection can not be ignored.

In fact, the experience of the city of Zurich[13] shows that the incidental pollution of a body of water of considerable size is not to be considered with indifference. The water supply of Zurich is drawn from the lake of the same name, and although no public sewers empty into the lake, there is opportunity for pollution in the ways noted above, and it is said that the incidental contamination of this sort has apparently increased with the growth of the city. This pollution from sources other than sewers reached such an extent that sand filtration was resorted to in 1886 as a means of checking the increase in typhoid fever. For the six years before the introduction of filtration the annual typhoid fever death rate was 6.9 per 10,000 inhabitants, and for the six years after it was only 1.0; the improvement is attributed by the local authorities to the purification of the water supply. A similar increase in the pollution from non-sewerage sources has been observed in Mystic Lake at Boston, although in this case the body of water affected is much smaller than at Zurich. In Germany the use of unfiltered surface water for municipal supplies is altogether prohibited.

The probable increase in the incidental pollution of Lake Michigan, important as this may ultimately prove to be for the problem of a pure water supply for Chicago, does not, however, press for consideration so much as another question. This concerns the limitation in the boundaries of the area for which drainage is or is about to be provided. The present sanitary district of Chicago does not include either the independent towns and villages along the north shore or the rapidly growing part of the city itself lying south of 87th Street (see map). The Calumet sewer district has a resident population of 71,269, and is said to be growing rapidly. W. L. Marshall, United States Government Engineer, in his report[14] of 1892, estimates the pollution of the Calumet River to be equivalent to that caused by a population of 700,000, owing to the number of persons and manufacturing establishments along the course of the river. While manufacturing refuse is not perhaps so objectionable on sanitary grounds as house sewage, this high degree of pollution is worthy of concern. As will be seen by reference to the map, the drainage from the Calumet region constitutes a particular menace to the water intake supplying the southern section of the city. No provision has yet been made for dealing satisfactorily with the sewage of this territory, although it is manifest that, at least so far as the Hyde Park water supply is concerned, the untrammeled discharge of the Calumet sewage into Lake Michigan threatens the health of the city (Fig. 1). A project for draining this area into the sanitary canal has been urged at various times, but as a large extent of rather thinly populated territory is involved, the expense to the resident taxpayers has proved a serious barrier, and in fact a measure proposed for this end was overwhelmingly defeated at the polls. Whatever course is finally adopted in regard to the Calumet sewerage it will probably have to be undertaken at the expense of the city of Chicago. In the absence of any policy the citizens of Chicago risk a repetition of conditions like those that have led to the recent distastrous outbreak of typhoid fever.

The question of the most suitable means of protecting the water supply against this source of pollution is therefore an urgent one at this time. The plan that has been most seriously considered is the construction of a canal from the lake at Calumet to join the sanitary canal at the "Sag." This would involve, it is stated, very nearly twenty-four miles of constructive work and is estimated by the chief engineer of the Drainage Board to cost $11,879,854. The history of engineering undertakings of this class would seem to indicate that this limit might possibly be exceeded.

There is at least one other possible method of dealing

with the Calumet situation which does not appear to have been as yet fully discussed. This is the possibility of purifying the Hyde Park water supply by the method of slow sand filtration which is so successfully employed in Berlin, London, Hamburg and many other European cities. The total amount of water pumped by the 68th Street station in 1900 was 22,573,449,573 gallons, and the daily average 61,845,067 gallons.[15] The cost of constructing a filtration plant for this amount of water under the conditions prevailing locally is, of course, a matter for detailed expert investigation, but the experience of other American cities may possess some interest, even if not directly applicable. The city of Albany, N. Y., installed in 1899 a filtration plant that is capable of yielding 14,700,000 gallons daily, at a cost of $496,633. Assuming that substantially the same ratio would hold for the treatment of the Hyde Park water, and there are some reasons for believing that the advantage would be on the side of the latter, the cost of construction of suitable filtration works would fall between $2,000,000 and $2,100,000. Land for the purpose could perhaps be obtained near the present pumping station at the southern end of Jackson Park, and since, as has been found in several European cities, the presence of filter basins is by no means incompatible with the aims of landscape gardening, it is possible that a tract of land might be granted by the South Park Commissioners. Even if land had to be purchased outright or made by filling in along the lake front, the cost in this neighborhood should not be exorbitant. There seems every reason to suppose that the dune-sand found so abundantly along the shore of Lake Michigan would prove suitable for the construction of the sand beds, and that the expense of transporting the material would therefore not be excessive.

The expense of operating a sand filter increases with the amount and turbidity of the water treated. The cost of operation for twenty years at Poughkeepsie, N. Y., with the moderately turbid Hudson River water has averaged $3 per million gallons of filtered water.[16] In England and Germany the cost of operation is much lower than this, but the economic conditions obtaining in the United States render it probable that the Poughkeepsie figures would represent a fair average, although, of course, local conditions differ widely. Supposing that in Chicago the cost of operation ranged even as high as $4 per million gallons, the annual cost of operation would amount to $90,292, or a capitalization of about $2,250,000 on a 4 per cent. basis. Although the estimates here given are necessarily of a most tentative character, they have been made on a basis sufficiently liberal to indicate that a sum considerably below the estimated cost of constructing a canal from Calumet to the sanitary canal would suffice for the construction and annual maintenance of a modern sand-filtration plant in connection with the 68th Street pumping station. The installation of a sand filter would possess the additional advantage that the incidental and accidental pollution of the lake would then be securely guarded against. On the other hand, it would prove most discouraging to discover after the expenditure of seven or eight million dollars for the construction of a drainage canal for the Calumet region that the pollution of the Hyde Park water supply from towns in Indiana south of the Calumet and from other sources was still so great that the amount of typhoid fever in that portion of the community served by this supply remained excessive.

It might be added, furthermore, that the amount of water pumped by the 68th Street pumping station in 1900 was nearly one-fifth of the total pumped for the whole city, and that the average daily consumption of water for the whole city reached the enormous figure of 169 gallons per capita (average amount of water pumped per day in gallons, 322,599,630; population of Chicago, U. S. Census, 1,698,575). These figures betray the enormous waste of water that takes place under existing conditions. Experts insist that 70 gallons of water daily per capita amply suffices for all the legitimate needs of a modern American city.[17] If it is true, as maintained by competent engineers, that more than one-half of the water pumped into the Chicago mains is wasted by leakage or carelessness, any method of reducing this waste would also reduce proportionately the cost of construction and maintenance of a sand filter, since both initial and operating expenses depend directly on the quantity of water treated.

It may be remarked finally that, assuming a reduction of one-third in the amount of water consumed (i. e., to 125 gallons daily per capita, which is still 50 per cent. larger than a liberal normal consumption), and assuming that the expense of construction of sand filters in other portions of the city would not differ greatly from the figures already given, the cost of installing a filtration plant for the water supply of the whole city would be about $8,500,000, and the cost of operation should be capitalized at about the same sum.* This is certainly not the psychologic moment for inviting the citizens of Chicago to consider any general sanitary project, but so far as the Hyde Park water supply is concerned the construction of a sand filter in lieu of another drainage canal would seem worthy of consideration on grounds both of efficiency and economy.

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10. Schüder: Loc. cit.
11. Petruschky: Centralbl. f. Bakt., 1898, xxiii, p. 577.
12. First Annual Report, Pennsylvania State Board of Health, 1886, p. 176.
13. Hazen: Filtration of Public Water Supplies, New York, 1900, p. 274.
14. Report of Department of Public Works, City of Chicago, 1900, Commissioner's Report, p. 10.
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* The construction of the Main Drainage Canal alone cost something more than $36,000,000. Other changes and appurtenances are contemplated which will add materially to this sum. One recent estimate of the expense of further improvements is as follows:

For widening the Chicago river to a width of 130 feet between Lake and Eighteenth Streets, and to a width of 400 feet south of that point	$11,000,000
For the widening of the earth section of the drainage channel between Chicago and Summit to the standard width of rock sections	500,000
For the construction of twenty-seven bascule bridges to replace center pier structures	4,050,000
For a system of drainage for Evanston and adjacent north shore towns	4,500,000
For a system of drainage for the Calumet region, including the construction of the Sag cut-off	11,879,854
Total	$31,929,854
Add original cost of construction	36,000,000
	$67,929,854

THE SURGICAL TREATMENT OF GALLSTONES.

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The treatment of gallstones can be divided into medical and surgical. For many years the medical treatment prevailed and the greater benefits to be obtained by surgical treatment were not duly appreciated. Owing to the great advances made in surgery the tables have been turned and the sufferers from gallstones obtain a much greater measure of relief. I know but little of the so-called medical treatment of gallstones, and I am very skeptical as to its practical value.

DANGERS INCURRED BY PATIENTS SUFFERING FROM GALLSTONES.

Not only is there a danger of sudden death from the passage of a gallstone, but there are many other dangers to be encountered. There is the great danger of gangrene of the gall bladder (closely resembling gangrene of the vermiform appendix), with rupture and death or with the formation of a secondary abscess; there is the danger of inflammation with empyema of the gall bladder, accompanied by chills, high fever and the occurrence of a suppurative pylephlebitis followed by death. There is the danger that septic infection may travel from some ulcer produced by gallstone irritation of the mucous membrane of the gall bladder or ducts to the vessels of the liver. Even when no pus is to be found either in the gall bladder or gall ducts these septic conditions may spread beyond the confines of the gall bladder and produce inflammation of the peritoneum and surrounding structures. Abscesses may form external to the gall bladder and may perforate in various directions, upwards to the right pleural cavity, forwards through the skin or backwards into the posterior hepatic pouch. These are grave conditions, and if they do not terminate fatally the patient is liable to be ill for many weeks.

I have seen one patient die from shock produced by the passage of a gallstone through the common bile duct, and, a few years ago, I saw a gallstone that was presented to one of our medical societies after it had been removed postmortem from the common bile duct of a patient who died suddenly from shock during its attempted passage. Many other cases of death from this cause have been reported. Obstruction of the common bile duct by stone frequently occurs in patients advanced in years, so that this serious complication must be considered as a constant menace to those who are suffering from cholelithiasis.

A few weeks ago I removed a gallstone from the common bile duct of a woman aged 65, who was suffering for the first time from continued jaundice and who did not know that she was troubled with gallstones, though 147 were removed from the gall bladder. A more frequent resort to surgical treatment would prevent the occurrence of this serious condition in elderly people and would also prevent that slow and living death that is to be looked forward to by many of these sufferers. They begin to have fever and chills and intermittent attacks of jaundice with impairment of the appetite and a loss of strength. The excessive use of opiates and alcoholic stimulants makes them still more miserable until death finally ends the scene.

A patient suffering from gallstones may, at any moment, become seriously ill and the surgeon will find himself face to face with as great a responsibility as if he was dealing with a case of acute appendicitis. At any time these patients may have a violent outbreak of a rapidly fatal cholecystitis with cholangitis. Repeated inflammations may produce such a condition of chronic inflammatory exudate as to prevent the surgeon from carrying out surgical measures for their relief. When brought face to face with these serious complications our responsibilities are increased.

GENERAL CONSIDERATIONS.

In discussing the surgery of the region occupied by gallstones we must consider the organs with which we have to deal. Stones may find a lodgment in the ducts throughout any part of their course, or in the gall bladder, or in both. When removing these stones we are called on to open hollow organs that are liable to leak, to peel away tissues from a solid organ that is liable to bleed, and to readily absorb septic material, and we are called on to open ducts that are lying in close proximity to blood vessels that may be injured. The leakage of bile from open ducts and from an opened gall bladder was to be feared before attention was drawn by Morison to the post-hepatic pouch and to the safety of gauze drainage by my friend, Dr. W. E. B. Davis, Birmingham, Ala., after he had demonstrated its usefulness in many experiments on dogs.

Morison's pouch should be used for drainage in all cases in which post-operative leakage is liable to occur. The method I have adopted is to institute through-and-through drainage by means of a piece of rubber tubing entering through the wound in front and emerging through a counter opening at the deepest part of this pouch. Not only should a rubber drainage tube be used, but iodoform gauze packing should be placed over the leaking point or points to still further assist the tube. With a due attention to this matter many of the operations for the removal of gallstones are robbed of their terrors and patients who formerly would have died can now be carried safely through.

Owing to the introduction of this method of drainage it is no longer necessary to break up calculi by the needling process, or to open the intestine for the purpose of removing a stone from the common duct, and why? Because we no longer are afraid to make a direct incision over the stone into even the most friable duct. Then, if necessary, we can readily break up the stone by means of gallstone forceps passed through the opening.

CHOLECYSTOSTOMY.

Gallstones are found most frequently in the gall bladder. They are sometimes formed with great rapidity. Among my collection I have several thousand taken from the gall bladder of one patient.

CASE 1.—In February, 1897, he had his first attack. Cholecystostomy was performed, a fistulous opening remained, and this was closed by two sutures. In November, 1897, he again had colic and jaundice; in March, 1898, Dr. Tiffany of Baltimore operated on him. He found no stones. In June, 1898, he was still in the hospital suffering from attacks of colic and transient jaundice. The gall bladder was again opened, but no stones were found. July 3 he suffered from a blow on the head for which a portion of the skull was elevated. In August, 1899, his colicky pains returned. October 1 he had colic for four days and was then jaundiced for two months. In November he was operated on again, for the fourth time, and black tarry fluid and one gallstone, soft and black and of the size of a cherry pit, were found in the gall bladder. A cholecystenterostomy was then performed and anastomosis with the colon completed. At last reports the button had not passed. The subsequent progress of the case is unknown to me. The gallstones in this case were like grains of gunpowder, and it was not to be expected that operative procedures would give much relief.

But this is an exceptional case, and it is a well-known fact that a simple cholecystostomy in a large majority of cases gives complete relief. The larger the stone, or stones, the greater the freedom from recurrences; the smaller the stones, the greater the liability to recurrences.

GANGRENE OF THE GALL BLADDER.

While it is a well-known fact that gallstones may lie in the gall bladder for years without giving rise to trouble, it is also well known that they will frequently produce a condition of inflammation of the gall bladder that may even suddenly eventuate in gangrene. I have met two cases of gangrene of the gall bladder.

CASE 2.—Dr. R., aged 62, was taken suddenly ill with severe pain in the abdomen. The bowels moved after the administration of a purgative. Temperature and pulse were elevated. Nausea. Some few years before he had had a severe attack of what was supposed to be typhoid fever, after which he suffered from terrible pains that were supposed to be due to indigestion. On examination of the abdomen fulness was felt below the edge of the liver. There was no rigidity of the right rectus muscle. Notwithstanding this fact the case was diagnosed as one of appendicitis. On opening the abdomen the appendix was found to be healthy. On looking further up a gangrenous gall bladder was seen snugly placed among inflamed intestines and omentum. The incision was enlarged, these adhesions were broken down readily, the gall bladder was opened and drained. The fluid evacuated was mucopurulent. Five gallstones were removed, one of them obstructing the cystic duct. A long glass drainage tube was placed to the bottom of Morison's pouch. Patient made an uninterrupted recovery.

CASE 3.—Mrs. W., who had a baby a month old, was taken suddenly ill early in the morning with severe pain in the abdomen. Her physician, Dr. T. B. Richardson, was sent for and he found her in great agony, and immediately administered a large dose of morphia. He was afraid that she would scarcely survive. Pulse was rapid and thready and the patient looked very ill. Improvement took place, but, later in the day, the pulse began to fail and he was again alarmed at her condition. I was sent for, but as I was out of town he decided to wait until the next day. In the morning the patient had somewhat improved. The temperature still remained high, having risen to 104 at the onset of the illness. She complained of one tender spot beneath the edge of the liver over the region of the gall bladder. There was slight puffing of the abdomen and vomiting. When I saw the patient the pulse was rapid and she was profoundly septic. A hard, tender, resistant spot could be made out over the region of the gall bladder, and I concluded that this must be another case of gangrene of the gall bladder. In order to share the responsibility I asked for another consultant before proceeding to operate. Very little hope was held out of the patient's recovery even with operation, owing to the septic condition. The abdomen was opened, the tense gall bladder was found, a large, green grangrenous patch involving at least one-third of its entire surface. The gall bladder contents were evacuated. The parts were too friable, swollen and thickened to permit of removal and on this account through-and-through drainage was established and the gall bladder area was packed off from the rest of the abdominal cavity by means of a large packing of iodoform gauze. During the convalescence it was necessary to again administer chloroform to remove the gauze, but the patient made an uninterrupted recovery. During the hurried manipulations, hurried owing to the patient's collapsed condition, no gallstone could be found.

It should be remembered that as the tender spot an inch and one-half from the anterior superior spine of the ilium towards the umbilicus points to appendicitis, so the tender spot an inch and one-half to the right and one inch and one-half above the umbilicus points to cholecystitis. Cholecystostomy was performed for the relief of this condition and was accompanied in the one case by gauze drainage and in the other by tube drainage with recovery in each. Gallstones do not necessarily produce such severe inflammation as to lead to gangrene.

EMPYEMA OF THE GALL BLADDER WITH GALLSTONES.

The next condition of which I wish to speak is that of empyema of the gall bladder. Inflammation has taken place and pus has been formed. The patient may be very ill in the acute septic condition, or may be in fair health while the gall bladder may be filled with pus that is almost sterile, as it is found to be in other situations in which it has been retained for a considerable time.

It has been stated that it is necessary and wise in this condition, as well as in that of gangrene of the bladder, to remove the entire organ. I consider that this is too sweeping an assertion. It is not necessary to remove the gall bladder in cases in which it is inflamed and septic and thickened from chronic inflammation and filled with pus. After it has been drained for a time and the offending calculi have been removed, the organ soon resumes its normal condition. I have considered it advisable, under such circumstances, to carry out intermittent irrigation of the organ by means of a small catheter placed in the gall bladder and attached to a douche tin. It is, as a rule, easy to fasten such a gall bladder to the abdominal wall owing to the fact that it has been considerably distended. Suppuration may be found in a gall bladder containing a few or many stones and with or without complete obstruction of the cystic duct.

CHRONIC INFLAMMATION OF THE GALL BLADDER CONTAINING CALCULI BUT NO PUS.

In these cases it is usual to find the gall bladder thickened, adherent, contracted and sometimes sacculated. There is evidence that the patient has suffered from many attacks of inflammation. The operation of cholecystostomy may be a very difficult one to perform, under the circumstances. If such a gall bladder is put on the stretch and fastened to the edges of the parietal incision it is liable to tear away. If stitched up and dropped back after the stones have been removed, the stitches are liable to tear out and permit of leakage, as it frequently happens that there is a partial obstruction to the flow of bile through the common duct. The operation of cholecystectomy, under the circumstances, would be a very difficult procedure. If saccules are present it may be necessary to incise them individually and remove their contents and then to close the opening in a "sort of a way." Such closures can not be depended on to be water tight. I have treated such cases by passing a drainage tube into the gall bladder and stitching the opening in the gall bladder firmly around the outer wall of the tube. None of the stitches go through the tube. Gauze packing is then placed around the tube and another drain is either put into the bottom of Morison's pouch or carried through a counter opening at its lowest point. The gauze is removed about the fifth day and the tube in the gall bladder is removed about the same time. If a counter opening has been made in the flank this is not allowed to close for a couple of weeks. These cases may be very successfully dealt with in this manner.

CHOLECYSTECTOMY.

When a stone becomes blocked in the cystic duct the bile remaining in the gall bladder is decolorized after a time and nothing will then be left but a clear mucoid fluid. The gall bladder may become thinner and may remain freely movable below the costal margin on the

right side. While in this condition it may be so overdistended at any time as to become gangrenous, the gangrene usually beginning at its tip.

I operated on one such case where a sudden onset of pain and a tenderness on pressure over the gall bladder drew attention to the urgency of the condition. At the operation a very small gangrenous area could be made out at the end of the overdistended gall bladder. It is therefore advisable that all such cases should be operated on and the patient relieved from this source of danger.

The operation that should be performed, under the circumstances, is cholecystectomy; the entire gall bladder should be removed. This procedure can be carried out without difficulty. The tissues attached to the liver may be raised up with forceps and the finger can then be thrust into the layers of cellular tissue. Scissors will be required to cut through the peritoneum where it is dense. There is no hemorrhage to alarm the operator. The gall bladder is peeled off from the liver until the stone is reached; the duct is then further isolated beyond the stone and tied off with a fine silk ligature. Supporting sutures are placed over the end of the duct to bring peritoneum to peritoneum and act as an additional safeguard against a leak. It is wise to place a small strip of iodoform gauze down from the abdominal wound to the end of the cystic duct. Unless the operation of cholecystectomy is performed for this condition a mucous fistula may persist, and this may require a second operation for its relief. This secondary operation is a difficult one to perform owing to the fact that strong adhesions are now present. I met with these difficulties in one case, and for a few days after the operation despaired of the patient's life.

All operators seem to be agreed that it is wise to perform the operation of cholecystectomy in all cases in which we have a much distended and atrophied gall bladder with an occluded cystic duct. On one occasion I left three stones lying side by side in the cystic duct after having removed a large number from the gall bladder by cholecystostomy. The stones passed on without difficulty and the patient made an uninterrupted recovery. At the present time I would not allow the patient to run any such risk, but would remove the gall bladder and the cystic duct with the stones *in situ*. It was interesting to note in this case that when one stone had entered the duct other smaller stones followed.

I removed a gall bladder two weeks ago with the stone in the cystic duct. The undilated duct could be seen beyond the stone. After looking at the enormous distension it was easy to understand how stricture of the duct may be produced after the removal of the foreign body. The patient from whom this was removed made an easy recovery and the operation only consumed a few minutes.

The other indications for cholecystectomy are at present being discussed by the surgical world. Many surgeons consider that the gall bladder should always be removed for the conditions above mentioned, namely, gangrene of the gall bladder, empyema of the gall bladder, chronic inflammation and thickening of the gall bladder with or without contraction, and for cystic enlargement of the gall bladder. Others consider that this is too radical a procedure; that it is not necessary nor advisable, and that it is undoubtedly accompanied by a greater mortality than the operation of cholecystostomy. I feel satisfied that there is a danger that the pendulum may again swing, as it ever swings in the surgical world, too far toward the radical side, but to come back again, no doubt, in the course of time.

Let us for an instant consider the two analogous conditions, gangrene of the gall bladder with one or more stones in its interior, and gangrene of the vermiform appendix with one or more coproliths in its interior. Do we consider that it is always wise to remove a gangrenous appendix? Certainly not. There are times when we consider it wiser and safer to make our incision, to institute drainage and endeavor to isolate, with protecting gauze, the infected area. To dig down into and stir about these septic, infiltrated structures, under certain circumstances, is not good surgery. The same applies to the treatment of gangrenous conditions of the gall bladder. If, however, the organ can be readily removed and the tissues are not too friable to hold ligatures, it may be advisable to remove the offending organ, but, in my experience with two cases, the patient has not been in any condition to undergo such a prolonged operation.

Cholecystectomy does not produce a more radical cure than cholecystostomy. Even after cholecystectomy has been performed gallstones may form in the ducts in the liver itself and may be passed onward through them into the intestines. Owing to the fact that there is no cholecystitis to be encountered they are not large. I have seen, on one occasion, gallstones of medium size lying in a row in the hepatic duct above the junction of the hepatic and cystic ducts.

Langenbeck has denied that obstruction can result from stones forming in the biliary ducts outside of the gall bladder, but, as I have just said, I have seen such obstruction. The smallest stone in the row was nearest the liver. I was able to milk the stones down the hepatic duct and up from the common duct through the cystic duct into the gall bladder. The gall bladder had been opened and the gallstones were all removed in this manner.

The gall bladder is not known to be of any particular value and many animals are able to get along without it. It is occasionally found wanting in the human species. It has been said that the hemorrhagic condition of the mucous membrane of the gall bladder that is likely to occur as a post-operative complication after removal of gallstones, may be done away with by removal of the organ at the time of operation. Such hemorrhagic conditions are, however, rare. I have met with but one case, and at the postmortem examination it was found that the blood had come from a ruptured vessel in the liver, and, therefore, cholecystectomy would not have prevented death.

It has been stated as further argument in favor of cholecystectomy that by the removal of the gall bladder there is no danger of a recurrence of the cholecystitis, the disturbing element. I have not seen such disturbance occur after simple cholecystostomy and drainage if the stones have been thoroughly removed. It may always be desirable to remove the gall bladder for all the diseases to which it is liable, but the question to be answered is, is it always wise to do so?

In the presence of obstructive jaundice the operation of cholecystectomy is not advisable. The common duct being already obstructed it is desirable either to remove the stone and rely on the future patency of the duct for the relief of the patient, or to remove the stone and anastomose the gall bladder to the intestine, or to leave the stone in situ and perform cholecystenterostomy. It must be more difficult to anastomose the common duct itself than to anastomose the gall bladder to the intestine.

It has been stated that cholecystectomy should be con-

sidered as a curative operation, as it removes the cause of the disease. From what I have already stated I am satisfied that this is not so. Having seen large stones in the hepatic duct and in abscesses of the liver I am convinced that quite large stones may form outside of the gall bladder. There must, therefore, still be a danger of obstruction of the ducts even after the gall bladder has been removed. It would be interesting to ascertain whether the animals possessing no gall bladder suffer from gallstones.

A great deal has been said regarding the fistulæ that are left after choleeystostomy. They are not comfortable, but are undoubtedly curative, and, in the large majority of cases, they close without trouble. The only fistula that is troublesome is the mucous fistula, and, as we have already decided that the gall bladder should be removed in the cases in which the mucous fistula is liable to form, this difficulty is done away with. The fistula that forms owing to the fact that the common duct is still obstructed is a useful one, for without it the patient must undoubtedly continue to suffer from jaundice, and if it persists after having fulfilled its offices it may be done away with by making an anastomosis when the patient is in a greatly improved condition. So that we see the discomfiture to the surgeon and the discomfort of the patient have been blessings in disguise.

The formation of fistulæ teaches us that we should not use a large drainage tube for the purpose of draining the gall bladder. In this way the gall bladder opening can be reduced in size and the opening will close more quickly. Any suture used to fasten the gall bladder to the skin or the abdominal wound should be a continuous one, if non-absorbable, and it should be removed in a few days after operation. The drainage tube should be removed early except in cases of empyema of the gall bladder.

The argument that is used for the removal of the gall bladder in all cases owing to the fact that cancer is liable to supervene on gallstone irritation, is not based on a sure foundation. The surgeon does not propose to leave gallstones in the gall bladder to give rise to the irritation that is to lead up to the cancer, so that with or without a gall bladder this danger will be done away with.

The flow of bile into the gall bladder is greatest at night. It has never been demonstrated that patients from whom the gall bladder has been removed suffer in the slightest degree as a consequence of this fact.

CHOLECYSTENTEROSTOMY.

The operation of cholecystenterostomy can be performed by means of the elastic ligature or the Murphy button. I have used both and prefer the button. When the button is used care must be taken to allow long threads to float from the portion of the button placed in the intestine into the lumen of the gut. These silk threads become entangled in the fecal matter and the slight extra traction that is exerted has a tendency to draw the button toward the intestine and away from the gall bladder. I used the smallest sized Murphy button that I could buy and then had some very small ones, that I show here, made to order by Truax, Greene & Co. These have been used with perfect satisfaction to myself and to the patients.

After the bile has been diverted through the new channel the concretion impacted in the common duct grows smaller and disintegrates. I believe that it is quite possible that it may entirely disappear and that the bile may again proceed by the normal channel. The reverse of this is the case so long as the bile is passing by the impacted calculus, owing to the fact that more bilirubin calcium is being precipitated on its surface until it may increase to a very great extent.

CHOLEDOCHOLITHECTOMY.

We have considered the treatment of stones in the gall bladder and in the cystic duct. We have now to turn our attention to the treatment of gallstones in the common or hepatic ducts. It is seldom that stones are met with in the hepatic duct. When they are met with they must be removed by pressing them down into the common duct, from which they may be removed by forcing them back through the cystic duct into the gall bladder, or they must be removed by direct incision. When a stone is lodged in the common duct it will be accompanied by an intermittent jaundice or a jaundice of varying intensity. The patient may be very deeply jaundiced for a great length of time.

The operation for the removal of the stone is in some cases fraught with such risk to the life and difficulty to the surgeon that it may be advisable to adopt another measure for the relief of the patient. An anastomosis between the gall bladder and intestine may be established. The colon is the portion of the bowel that can be most readily approximated to the gall bladder. Before this operation was carried out it was supposed that it was not advisable or, in other words, that the small intestine should be used instead. I have found that the patients do not have diarrhea as a consequence of the pouring of the bile into the large intestine or any digestive disturbances. When the small intestine is used it must be either drawn up over the colon or taken through the folds of its mesentery. I have anastomosed the gall bladder to the large intestine on several occasions with the most perfect results.

Owing to the advances that have been made in gall-bladder surgery cholecystenterostomy stands to-day in a different position. We can now incise ducts with impunity that can not, owing to their friability, be stitched, owing to the fact that we understand the safety given by careful and through drainage. The operation of cholecystenterostomy must now be recorded as rather a makeshift, only to be used when a patient is in a very bad condition.

On one occasion, when operating on a young woman, I found that she already had an anastomotic opening between the gall bladder and intestine that had been produced by the bursting of an inflamed gall bladder into the bowel.

It has been stated that the relations of the hepatic artery, the portal vein and the common duct may be changed and one of the vessels may run across the duct. If the positions of these important structures are altered the removal of a stone from the common bile duct is surrounded by a new and terrible danger. The condition might be detected during operation by a careful preliminary examination of the parts. Even when the structures are normally placed the operation is a difficult one. Much assistance can be attained by a forceps that I have had made by Stevens & Sons of Toronto. It is intended to replace the fingers of the left hand, to grasp the duct containing the stone and to draw it forwards to be within easier reach and away from the important structures beneath it.

The difficulty of the operation varies with the construction of the patient. It is more difficult to perform the operation on a patient with deep ribs than on one with short ribs. In all cases a large sandbag placed under the back and the transverse oblique incision should

be employed, taking care to keep the incision well down below the hepatic margin. The liver can then be pulled upwards and the stomach inwards and downwards and the colon downwards so that the field of operation may be brought well into view. It is always advisable to pack in sponges to drag down the stomach and intestines and to protect the general peritoneal cavity from infection. I find that this dragging down of the stomach is of great assistance.

If the forceps I have mentioned are not used the duct must be held forwards with the thumb and index finger or the first two fingers of the left hand. With the duct held down either by the fingers or the rollers of the forceps the operator must decide on the length of the incision into the duct that will be necessary for the removal of a stone. A large stone may be crushed and the debris can be removed with a small scoop. When the length of the incision into the duct has been decided on a purse-string suture should be placed beyond its limits, the incision must then be made in the center of the oval formed by the running suture. The stone having been removed and a probe having been passed through the common duct into the intestine the purse-string suture is drawn and tied and any further escape of bile over the field of operation is prevented. A supporting row of mattress sutures should now be placed to more securely close the opening into the duct. Before closing the abdomen it will be wise to place a small gauze drain down to the duct and to drain Morison's pouch by a single drainage tube from the front or by through-and-through drainage.

As I have said before, the intestine should not be opened for the purpose of removing a stone from the common bile duct. Such a procedure is not necessary according to the light of our more recent experience. It may happen that a malignant growth, a so-called cylindroma, obstructing the common bile duct is mistaken for an impacted gallstone. I have met with such a case in my own practice and have seen two similar cases in the practice of others. Under such circumstances the jaundice usually comes on suddenly without pain; it may be intermittent. A rounded mass will be felt after the abdomen has been opened that can only be differentiated from stone by means of a needle passed through the wall of the duct into the mass, or by means of the passage of a probe or a pair of forceps through an incision into the duct. Owing to its gritty nature a gallstone can be easily distinguished from a neoplasm. These growths are always rounded and not faceted and frequently move back and forth in the duct through a small space.

It is scarcely necessary for me to enter into a description of more than general details of these operations to such an audience. We all know that these operations can not be carried out successfully unless proper precautions are taken to prevent contamination of the peritoneal cavity. Sponges, absolutely sterile and plenty of them, must be made use of so that during the performance of the work all the intestines, except a portion of the colon and the stomach, are kept out of view. Sponges soiled with bile or gall-bladder mucus must be discarded and not used again during the performance of the operation.

And now, in conclusion, let me say that there are two great surgical principles involved in this work; firstly, thorough asepsis and thorough protection against the infection of any of the surrounding tissues; and, secondly, thorough and efficient drainage. If these two principles are kept in mind the operator can sacrifice thoroughness in his work for the sake of the benefit of haste to his patient. Many of these patients do not withstand the shock of a prolonged operation and the length of time occupied is of great importance. In the pelvis we have been endeavoring to do away with drainage while in this region we provide the most thorough drainage. The conditions are different.

RECENT INVESTIGATIONS CONCERNING THE RELATION OF HUMAN AND BOVINE TUBERCULOSIS.*

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During the past year the question of the relation of bovine and human tuberculosis has been discussed by numerous investigators who have brought forward new facts and deductions and thrown much light on the subject. There has undoubtedly been greater activity in pressing the researches relative to this subject than at any other time in the history of medicine. The conclusions presented by Koch[1] at the British Congress on Tuberculosis were so unexpected and so different from the views of the majority of investigators that they have stimulated research, and in that way, far more than by any presentation of facts, have aided in elucidating the question.

THE INOCULATION OF MONKEYS.

One of the first lines of investigation which suggested itself as a means of throwing light on the transmission of bovine tuberculosis to man was the inoculation of monkeys. These animals being more closely related to man than any others, it was to be supposed that if man was immune to bovine tuberculosis, monkeys, if not immune, would at least show a certain degree of insusceptibility. The experiments of De Jong and of the Bureau of Animal Industry show that bovine bacilli are at least as virulent for monkeys as are human bacilli. Comparative tests have also been made under the direction of the Bureau of Animal Industry with tuberculin made from human and bovine bacilli, and it has been found that both varieties of tuberculin produce a reaction in tubercular cattle and also in tubercular people. These indirect experiments indicate, therefore, so far as they go, the near relation of human and bovine tuberculosis and the susceptibility of man to the bovine bacilli.

TRANSMISSION FROM MAN TO CATTLE.

A review of the older literature of the subject indicates very clearly that both Martin[2] and Chauveau[3] produced tuberculosis in cattle in ingestion and inoculation experiments by the use of sputum and other tubercular material from man. More recently Arloing, De Jong and Ravenel have each produced tuberculosis in cattle by inoculation with tubercle bacilli obtained from the human subject. These experiments appear to be free from objectionable features, and it seems logical to conclude from them that while the human bacillus is less virulent than the bovine bacillus, the bacilli from different cases vary in activity and are sometimes able to produce a fatal tuberculosis in cattle. There are, consequently, no longer any grounds for the argument that bovine tuberculosis is not communicable to man because human tuberculosis is not communicable to cattle.

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* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee: Drs. Arthur R. Reynolds, George Cook and Heman Spalding.

INFECTION OF MAN FROM CATTLE.

Considerable light has also been thrown on the question of the transmission of bovine tuberculosis to man. Ravenel[4] has reported four cases of direct inoculation of man with bovine bacillus, which occurred in Pennsylvania, and in which tubercular lesions developed at the point of inoculation. The writer[5] has recorded a similar case reported to him by Naughton, which occurred in one of the Chicago abattoirs, and reviewed in a report to the American Public Health Association[6] the cases of similar transmission which appeared to be most carefully observed and reasonably free from doubt. Ravenel has reported the inoculation of one of his assistants with the bovine bacillus which multiplied locally, produced a lesion at the point of entrance, and was recovered fifty-eight days after inoculation. The bacillus had apparently retained its original virulence during this period. Ravenel has also obtained a bacillus from an intestinal lesion of a child, which, when inoculated on cattle, apparently has all the virulence of the bacillus from bovine sources.[7] Taking this in connection with the bacilli obtained from human lesions by Vagedes[8] and Lartigau,[9] which had the cultural peculiarities and virulence of the bovine bacilli, and it would appear that bovine bacilli, or others not distinguishable from them, have certainly been obtained from human tissues, where they had been multiplying and where they had produced disease. These investigations apparently answer in the affirmative the question that has been raised as to whether bovine tuberculosis is transmissible to man.

The frequency with which man is infected with animal tuberculosis can not be determined by the data now available, and the investigation of this question is surrounded with many difficulties. It has been made clear that we have no right to demand a primary lesion in the intestine as the criterion of ingestion tuberculosis. In experimental animals fed on tubercular material the oldest lesions are frequently found in the glands of the head and neck or even in the bronchial glands and lungs. While tubercle bacilli may pass through the stomach and penetrate the intestinal wall, this apparently is not the most common channel of infection from tubercular food. There are some authors who believe that even in inhalation tuberculosis the bacilli enter the tissues from the nasopharynx or pharynx, and seldom if ever follow the lumen of the air channels beyond the larynx. Now the pharynx, and probably also the nasopharynx, is as easily contaminated by infected food as by inhaled bacilli. It is difficult, therefore, to see how we can expect anything in the distribution of the lesions which will enable us to distinguish between ingestion and inhalation tuberculosis.

VARIATION IN THE BACILLI.

Probably the isolation of the bacilli from the lesions in man and the determination of their virulence will give some idea as to the frequency of bovine infection, but we must expect that in many cases the bacilli will be modified to such an extent that their source can no longer be determined. Ravenel[10] infected pigs with the human bacillus, and on recovering it from these animals found that it had increased very much in virulence. The writer asked Dr. Schroeder to carry out an experiment by injecting human bacilli into the milk ducts of an adult cow, the idea being to determine whether or not they would multiply in this situation and increase in virulence. The injection was made without injury to the tissues, and was followed by enlargement and induration in the quarter of the udder into which the injection was made, which persisted for more than six months. During this time a thick, creamy pus was formed in the milk ducts, and inoculations were made with this from time to time. The bacilli in this case appeared to lose their virulence, and as the period of their existence in the udder increased they required a longer time to kill guinea-pigs than at the time the infection was made. Later they appeared to have regained a part of the virulence which they had lost. It may be added further that the effect of this culture was far more persistent than that of dead bacilli injected in a similar manner. In the latter case an enlargement and induration of the quarter of the udder operated on occurred to almost the same degree as with the living bacilli, but the effect was transitory and disappeared in a few weeks. The experiments of Ravenel and of Schroeder therefore confirm many other observations which have been made relative to the instability of the virulence of tubercle bacilli.

The rapid modifications which these germs may undergo are shown by the increasing facility of culture after they have been grown a time in the laboratory, by the great variation in biological characters when inoculated into cold-blooded animals, as shown by Dubard,[11] and by the researches of Nocard and others in transforming mammalian bacillus into a stock having the characters of the avian, and vice versa. With these examples of the variability of the bovine bacillus before us, it is impossible to admit that the bovine bacillus, when it infects mankind, should always be recovered with its original morphological characters and cultural peculiarities. It would appear that it may retain these in certain cases and in others it may lose them.

STATISTICS OF TUBERCULOSIS AMONG CHILDREN WHO TAKE COW'S MILK.

It has appeared to me that we might obtain some indications from statistics as to the frequency of human infection from animal sources. While not losing sight of the fact that pulmonary tuberculosis may be caused by ingestion as well as by inhalation of the bacilli, we may nevertheless admit that by far the greater number of cases of pulmonary tuberculosis are the result of infection by inhalation. This being the case, we should expect to find a difference in the rate of increase or decrease of tuberculosis of the lungs as compared with other forms of tuberculosis.

Thorne's table[12] is as interesting and instructive now as it was when he published it in 1898, and notwithstanding the critical examination of the subject which has since taken place, the bearing of it appears plain and incontestable. This table shows that in England and Wales between the periods 1851-1860 and 1891-1895 there was a reduction of the mortality at all ages from phthisis or pulmonary tuberculosis of 45.4 per cent., while the reduction of the mortality at all ages from tabes mesenterica or abdominal tuberculosis was but 8.5 per cent., or less than one-fifth as much. And what is more remarkable, the mortality from tabes mesenterica in children under one year of age actually increased 27.7 per cent. for the period referred to.

Some years ago a publication was issued by the State Board of Health of Massachusetts entitled "The Vital Statistics of Massachusetts, 1856-1895." In this compilation the two years 1856-57 was contrasted with the two years 1894-95. In the two years first mentioned, for the period under five years of age, there were 46.3 deaths from pulmonary phthisis to 1,000 deaths from all causes. In the two years last mentioned there were

but 15.6 deaths from pulmonary phthisis to 1,000 deaths from all causes, or one-third as many. This is a very gratifying reduction in the phthisis death rate. Let us see now how it is with other forms of tuberculosis. In the two years first mentioned there were in the same age class 70.7 deaths from other forms of tuberculosis to each 1,000 deaths from all causes; and in the two years last mentioned there were 96.2 deaths from other forms of tuberculosis to each 1,000 deaths from all causes. That is, in this forty years there appears to have been an increase of 36 per cent. in the forms of tuberculosis other than phthisis in the class under five years of age, while there was a reduction in the mortality from phthisis at all ages of about 45 per cent. Are these statistics worthless or do they mean something?

I have also examined the statistics of Michigan, and I find that in that state during the years 1870 to 1884, inclusive, taking the class under five years of age, there were for each 100 deaths from consumption 81.8 deaths from other forms of tuberculosis; during the years 1885 to 1897, inclusive, there were 104.3 deaths from other forms of tuberculosis to each 100 from consumption; while during the three years 1898 to 1900, inclusive, there were 263.3 deaths from other forms of tuberculosis to each 100 from consumption. Why this tremendous increase in the mortality from other forms of tuberculosis as compared with consumption at what has well been called the milk-drinking age of life?

Gottstein,[13] in a recent study of this subject, concludes that among children in Berlin the mortality of those at the breast is but slightly more than half as much from tuberculosis as among those otherwise nourished, the proportion as he finds it being as 6 to 10. He also finds, in studying the statistics of 23 large cities and university cities, where the returns are especially reliable, that whereas there has been a reduction of the mortality at all ages from tuberculosis, this reduction has been distinctly less in children under 15 years of age than in persons over that age. From this he concludes that "the thought is not to be set aside that in the etiology of tuberculosis in children and in grown people very important differences must occur. There must be assumed for the infection of children another source than for that of grown people, and it certainly is natural to conclude from the difference established statistically that the source of children's tuberculosis is to be sought partly in nourishment with milk containing tubercle bacilli, while the decrease since 1894 is to be traced back to the better general and individual prophylaxis in the care of milk."

I have recently compiled a table showing the deaths per million population from different forms of tuberculosis, taking the last year for which returns are available. From this the deaths from tabes mesenterica or abdominal tuberculosis are, at all ages, as follows: New York City, 13; Chicago, 17; Boston, 32; Berlin, 40; Paris, 61; London, 221; England and Wales, 202; Scotland, 223; Ireland, 231. The great preponderance of this disease in Great Britain and Ireland is remarkable. On another occasion I endeavored to explain this partly by the different conditions existing in the countries covered by these statistics; that is, there is very much more tuberculosis in cattle in European countries than in the United States; there is far better protection by meat inspection in the United States and the continent of Europe than in Great Britain and Ireland, and there also appears to be more universal sterilization of milk on the continent.

EUROPEAN VS. AMERICAN CUSTOMS AS TO STERILIZATION OF MILK.

I have been interested in reading the opinion of Prof. H. W. Conn,[14] written some years ago, with reference to this subject. In his report on "The present attitude of European science toward tuberculosis in cattle," which was prepared after visiting the different countries of Europe and studying the conditions there, he said:

"Furthermore, it is a fact that in most European countries milk is not drunk raw to any very appreciable extent. Nearly all of continental Europe has, in the last few years, acquired the habit of sterilizing the milk before using it. In some countries this is almost universal. In Switzerland the children are taught the danger of drinking milk without sterilizing, and at the present time the amount of milk drunk without some kind of preliminary heating is comparatively small in continental countries. On the other hand, in England and in the United States the habit of sterilizing milk has not obtained much foothold. While milk is sterilized frequently for use among infants and invalids, there is no such general custom as in Europe in this direction, and in these countries we may say that the great bulk of the milk is drunk without sterilization. Now if milk were a considerable source of tuberculosis it would be inevitable that we should find a difference in the statistical results from countries where milk is used raw, and those from countries where it is sterilized."

It is immaterial to our argument that Professor Conn failed to find the difference between the statistics of Great Britain and of the Continent which he thought should exist if milk were an infective agent. We know now that such a difference does exist fully as great as could be expected. What we are specially interested in is the reason for this difference.

The figures quoted appear to indicate a considerable number of cases of disease in man originating from contaminated food, but still it must be admitted that this evidence is indirect and not altogether trustworthy. It must be taken as an indication rather than as a positive demonstration. Considered with the other evidence that has been mentioned, it justifies us in assuming provisionally that there is considerable danger to human health from the ingestion of food containing living tubercle bacilli.

In conclusion, it appears that there is now sufficient evidence to prove that tubercle bacilli of human origin may infect cattle and produce a progressive and fatal disease in them; also, that tubercle bacilli from bovine sources may infect man and produce a progressive and fatal disease. Ingestion tuberculosis may have its starting point in the glands of the neck or thorax, or even in the lungs, and the number of cases of human tuberculosis showing a primary intestinal lesion is no indication of the number of cases which occur from ingestion. We must depend largely on clinical evidence for a determination of the relative frequency with which man is infected by tubercular food.

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THE INTERTRANSMISSIBILITY OF HUMAN AND BOVINE TUBERCULOSIS;

A REVIEW OF THE EXPERIMENTAL EVIDENCE.*

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Within the past two years a number of articles have appeared beside that of to-day more or less exhaustively reviewing the evidence as to the frequency or possibility of human tuberculosis originating by contagion from cattle. Such evidence as we can obtain must necessarily be circumstantial. Even if it were permissible to make direct inoculation or infection experiments on the human being, a settlement of the question could only be obtained by a series of comparative tests on many individuals with tubercle bacilli of human and bovine origin respectively, and accompanied by all the safeguards to exact experimentation which have been found necessary in our similar tests made on cattle. We can therefore see the folly and the futility of those oversanguine experimenters who propose to decide the matter by one clumsily conducted inoculation test on a human victim. Truly, "Fools rush in where angels fear to tread."

Beside the experimental evidence—along with which I include that which is derived from a comparison of the biologic characters of the bacilli—we may obtain some information from other sources: from a comparative study of the naturally acquired disease in man and animal in reference to its contributory causes, its course, its anatomic and histologic features, and from the records of accidental inoculation or supposed ingestion infection of human beings from bovine tubercular products. This part of the subject having been already discussed I shall limit myself to a few remarks on certain points only which have come under my own observation.

CONTRIBUTORY CAUSES.

With the exception of certain minor influences which are not in operation in the lower animals, contributory causes are closely comparable in the human and bovine animals. In a recent paper[1] I have attempted to show that in human as in bovine tuberculosis by far the most important of these so-called auxiliary causes is the universally prevalent disregard of adequate ventilation requirements in sleeping rooms and stables. Above all other conditions tuberculosis is associated with overcrowding—among cattle practically confined to stabled herds; in human beings the special scourge of the tenement houses, infrequent or even unknown among races of primitive habits yet exempt from the insanitary vices of our modern civilization.

The course of the disease in cattle is not dissimilar from that of man. It is, as a rule, chronic, phthisis or pining, only showing itself as a late symptom. The number of animals showing any symptoms is only a small percentage of those actually infected. Recovery of individual cases under favorable conditions no doubt does occur, but on this point we have little knowledge. Latency or non-progressiveness appears to be as common a feature as in mankind.

THE BOVINE ANATOMIC LESIONS.

The anatomic lesions of the bovine disease are characterized by their predilection for the serous membranes, the magnitude of the tubercle conglomerates, their fibrous structure and tendency to calcareous deposits, and finally by the relative scarcity of tubercle bacilli. Ulcerative lung lesions are less common than in man, and for this reason the bronchial discharges are relatively less abundant and poorer in their content of tubercle bacilli. When pulmonary cavities or vomicæ do occur in cattle, the discharge is as profuse and the numbers of tubercle bacilli as great as in advanced pulmonary phthisis of man. Moreover, the tubercle bacilli present in such specimens do not differ morphologically from those of human sputa. These facts I have been able to demonstrate from specimens of ulcerative lung disease in cattle obtained many years ago, and now on exhibition here. In regions not open to external infection, as in lymph nodes and on serous membranes, the necrotic tissues do not liquefy and become purulent, but appear either as tough coherent masses or as accumulations of unorganized debris of butter-like consistency in which tubercle bacilli are usually difficult of demonstration. Specimens illustrating these conditions may be seen in all museum collections of cattle tuberculosis.

In the records of accidental infection of mankind by bovine tubercular products either by inoculation or supposedly by ingestion in milk we have an important source of evidence as to the transmissibility of the disease. On account of the extreme prevalence of human tubercular disease and the impossibility of tracing the source of infection, it is obvious that this evidence, unless carefully weighed, may easily lead us astray. It also is really little better than circumstantial. I have nothing to add to the able reviews of this part of our subject which have recently appeared.

EVIDENCE FROM EXPERIMENT.

Experimental evidence as to the identity or otherwise of human and bovine tuberculosis is not of recent date only, for we find that inoculation and feeding tests of tubercular products from man and from cattle had been made on various species of animals long before the bacterial nature of the disease was demonstrated. In an earlier report[2] I have summarized the records of such of these experiments as admitted of comparison. Although these earlier infection tests were seldom designedly comparative, they nevertheless, when collectively reviewed, enabled us to recognize the same differences in the effects of the human and bovine virus which have recently been more clearly demonstrated by comparative infection tests with cultures. Nevertheless, the interpretation by different investigators of the results obtained in the past, has been no less contradictory than at the present day.

Such investigators as Chauveau,[3] Klebs,[4] Crookshank[5] and others who have infected cattle with human tubercular virus have expressed the opinion that the resulting lesions are identical, anatomically and histologically,

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee: Drs. Arthur R. Reynolds, George Cook and Heman Spalding.

with those of Perlsucht—the naturally acquired cattle disease.

Creighton,[6] Pütz,[7] Klein and Gibbes[8] are among those who, from similar experiments, arrived at the opposite conclusion; namely, that there was not only a difference in virulence of human and bovine tubercle when inoculated in cattle, but a difference also in the kind (as well as degree) of the resulting lesions.

The structure of the new formations induced by such inoculations in different species of animals, can not well be studied apart from the extent of these lesions; consequently, in reviewing the more recent work in this line I shall consider these two features together.

Up to the date of Koch's memorable discovery of the bacilli of tuberculosis, apparently identical in man and cattle, there was, as we have seen, a difference of opinion among pathologists as to the identity of the disease in the two species. It had been repeatedly demonstrated, for instance, that the bovine tubercular virus produced by inoculation in the rabbit more extensive lesions than sputa derived from human consumptives. Furthermore, a critical study of infection tests made by different authors, such of them as admit of comparison, will show that this higher virulence of the bovine tubercle was exhibited also toward other animal species, and more especially toward cattle.

This fact not being clearly brought out by comparative tests made by any one investigator did not receive due recognition. Pütz (1884), however, as a result of his researches, makes the following statement: "A susceptibility of cattle for the tuberculosis poison of man, and of the latter for the Perlsucht poison of cattle is not shown by any observations which are entirely free from objections." In his own experiments the results were always negative in bringing about in calves a typical Perlsucht with human tubercular material, but positive in producing a local development of tubercles containing the specific bacilli—"lesions no more representative of the typical tuberculosis of cattle than are the vaccination pustules representative of variola proper."

Against this view may be placed that of Chauveau (1891), another investigator, who on several occasions had made comparative infeetion tests on cattle, and claims for his experiments the first complete experimental demonstration of the identity of the human and bovine disease. He states that "human tubercular virus reacts towards the bovine species exactly like tubercular virus coming from cattle."

With the discovery of the bacilli identical in their staining reactions in human and bovine tubercle, similar in cultural features, and in their effects on the guinea-pig, the etiologic identity of human tuberculosis and Perlsucht of cattle was generally conceded by pathologists, practically all writers on tuberculosis emphasizing more or less the dangers of human infection from the use of the milk of tuberculous cows. On the other hand, veterinary authors have generally assumed that the human consumptive may be a source of infection for the cow stable. It was with the view of testing this latter proposition that my own experiments in feeding calves with the expectorations of human consumptives were begun in 1896. In the same year was published the first report of Theobald Smith's inoculation experiments on cattle,[9] the earliest comparative tests which had been made with cultures.

Frothingham[10] (1897) made communication of his inoculation experiments on calves with tubercle bacilli cultures of human origin. In the following year a further report[11] was made by Smith of more extensive experiments undertaken in conjunction with the Massachusetts cattle commissioners.

Although my own sputum infection experiments for the Arkansas Agricultural Station were commenced independently, I am glad to admit that my later tests with cultures were modified, if not suggested, by those of Theobald Smith, to whom undoubtedly belongs the priority in this as in many other important lines of investigation and achievement in comparative pathology. Referring briefly to these experiments of my own, they were undertaken in order to test, as I have said, the possibility or likelihood of tuberculosis of cattle, and especially of dairy cows, having its source in the expectorations of consumptive attendants. I need not emphasize the vast importance of exact knowledge on this question from the standpoint of agriculture as much as from that of public health.

My experiments included (1) feeding tests on cattle with human tubercular sputum, (2) comparative inoculation tests on cattle with human and bovine tubercle respectively, and (3) similar inoculation tests with artificial cultures of tubercle bacilli from these two sources on cattle, sheep and swine. About the same time Pearson and Ravenel, of the University of Pennsylvania, were engaged in similar investigations, their infection tests also embracing a number of different species of the domesticated animals. The report of this work has lately been published.[12]

Koch and Schütz of Berlin have furnished the latest contribution to this line of investigation in the address of the former[13] at the British Tuberculosis Congress of last year (1901). Although no new facts were brought to light by their experiments, the results of which were merely confirmatory of those previously obtained by American investigators, this address, as is well known, attracted world-wide attention on account of the great scientific reputation of the author and the somewhat extreme interpretation which he placed on the results obtained.

During the last year numerous other experimenters have been stimulated to a repetition of these inoculation tests on cattle with human tubercle, and even human martyrs have offered themselves, and been accepted by over-sanguine investigators, for inoculations from the bovine. Already we read of results: Calves have been successfully killed by sputum inoculation and human beings successfully infected (and cured) after inoculations from cattle; but we may well postpone any review of the work of these over-hasty experimenters until their enthusiasm moderates.

The more extensive and accurate of these recent experiments, namely, in order of publication, those of Smith, Dinwiddie, Pearson and Ravenel, Koch and Schütz, although not all co-extensive in design, have been practically in agreement in their results. It is therefore unnecessary to review each of them separately, and the summary which I here present is mainly the results obtained in my own experiments.

Inoculation of artificial cultures of the bacilli of bovine tuberculosis into the peritoneal cavity induces in calves, sheep and swine a rapidly progressive disease, early extension to the thoracic organs and death within a few months. Cultures of human origin (sputum) similarly inoculated, occasion in cattle a local eruption of tubercles over the serosa, especially abundant on the free omentum and in the sulci between the coils of the large gut. A tuberculin reaction may be obtained two weeks after inoculation. Sometimes no reaction is ob-

tained, and in all my cases this reaction was absent four to five months after inoculation. The initial lesions are similar in kind to those produced by the bovine germ, the difference showing itself later by retrogressive instead of progressive changes. If killed within a few months there may be found in addition to the tubercles mentioned above, and now already calcareous, a greater or less formation of pendant fibrous fringes and small papular or pedunculated fibrous nodules outgrowing from various parts of the serous coating of the viscera. The abdominal lymph nodes may or may not be involved. If kept for a year or more before dissection all traces of earlier changes may have disappeared. This, at least, has been my experience, and I have seen no impairment of health in cattle as a result of such infection from the human. I should not, however, dispute the possibility of inducing fatal disease in these animals by such inoculations. If the initial changes above described be so excessive as to impair the recuperative power of the tissues or their resistance to further invasion, the animal may succumb in a short time, either from the magnitude of the local changes or from unchecked generalization of the bacilli. Very young or feeble experimental animals, unhygienic surroundings, intravenous inoculations or intraperitoneal inoculations of impure cultures, such as we find in sputum, are the conditions on which we might suppose such a result to depend.

In sheep, human tubercle bacilli produce similar results as in cattle, but the local lesions are more extensive and more persistent. Pigs exhibit a somewhat greater susceptibility and may contract a progressive disease from such inoculations.

Generalization of the bacilli by way of the blood stream occurs in cattle, sheep and pigs, with formations of incipient miliary tubercles, which later become abortive in development, and are found on dissection as minute white points throughout the lung or as calcareous seed-like encapsuled granules in lung or spleen. On the other hand, if in pigs there is a pre-existent or intercurrent pulmonary disease generalization is followed by changes similar to those induced by the bovine germ—progressive miliary tubercles with enormous multiplication of tubercle bacilli in the lung tissue or its morbid secretions. Inoculation of sputum instead of pure cultures may act in a similar manner by producing a mixed infection.

BIOLOGIC CHARACTERS OF THE BACILLI.

The remarks which I have to make under this heading are mainly derived from notes of rather hurried observations made during the progress of the inoculation experiments described in Bulletins 57 and 63 of the Arkansas Agricultural Experiment Station. They are somewhat fragmentary, but on the whole are in close agreement with the facts as observed and more fully described by Ravenel.

Tubercle bacilli, as has been frequently noted, present considerable variation in morphology under different conditions of growth. In sputum they may be long or short, straight or bent, granular or homogeneous in staining. A similar variability occurs in the bovine germ, and hence comparison is less exact than in species of more constant morphology. In general, bovine tubercle bacilli are shorter than those of man. In the caseous masses of tubercular lymph nodes in cattle the bacilli are usually rare, but occasionally I have found isolated collections of such material in which the bacilli were present in large numbers. In such of these specimens as I have seen the bacilli are uniformly short, granular or solid in staining, and not thicker than the bacilli of sputum. In ulcerating lung disease of cattle, as we have seen, this peculiarity in morphology is not present, the bacilli in such cases being undistinguishable from those of human sputum. I have not as yet had the opportunity of examining a sufficient number of specimens of bovine tubercle to venture an opinion as to the conditions on which this peculiarity in morphology, the short so-called bovine type, depends, but preserved specimens in my collection—cover-glass preparations—from other animals which have been infected with both the human and bovine bacilli, illustrate the following facts:

In the pig and sheep which have died from inoculation with bovine tubercle bacilli, the short form is not preserved. Smear preparations from the incised lung in both these species, the disease being generalized, show tubercle bacilli in great abundance and of the usual sputum conformation. In the pig, where I have also under certain conditions (a pre-existent swine plague pneumonia, or crude sputum inoculations) obtained a fatal generalized tuberculosis by inoculation with the human germ, the morphology of the bacilli is similar to that of bovine tuberculosis in the same animal.

In the rabbit and guinea-pig inoculated with bovine cultures exhibiting the short form, the results have been variable. I have slides in my collection in which the short type of bacilli can be recognized in smear preparations from these animals, while in others longer and medium forms predominate.

As to the form which sputum tubercle bacilli assume when grown in the organism of cattle I have unfortunately made no observations. In sheep and pigs the usual sputum form is maintained. In cattle the lesions resulting from such inoculations have been so slight and their contained bacilli so rare that no exact comparison is possible from any preparations in my possession.

In artificial cultures the bovine germ maintains the short type with more constancy. This has been especially observed by Smith in growing the bacilli on pasteurized dog serum. On the medium which I have usually employed—glycerinized beef serum—although the short form usually predominates, the distinction between these and cultures from the human is not always appreciable. Bovine cultures are more difficult to start and generally make a feebler growth than human. The naked-eye appearances depend chiefly, I think, on the scantiness or luxuriance of the culture. On Löffler's medium I have noticed that the human germ assumes the short form of the bovine.

An explanation of the conditions on which this variability depends is not possible with our present knowledge. It is manifest, however, that the source of the bacilli in the sputum of the human consumptive—human or bovine—is not to be determined by their morphology.

In comparing the animal tuberculoses with that of man, we have limited our discussion to the bovine disease. Tuberculosis, however, occurs in other mammalian species. It is not rare in pigs and is occasionally found in horses, dogs and cats, while a very few instances are on record of its occurrence in sheep and goats. Wild animals in the state of nature are, I believe, entirely exempt, but under confinement in cages some species are peculiarly liable to fall victims to this disease. Are we justified, in view of these facts, in assuming the existence of races of tubercle bacilli peculiar to each zoölogic species in which tuberculosis naturally

occurs? The very rarity of the disease in most of these species precludes this idea.

In pigs the source of infection can be traced to ingestion of the milk of tuberculous cows. Cats and dogs are infected in the same manner, or from close association with their consumptive owners. Although under conditions of close confinement, as in menageries, we may well believe that transference of the disease may occur between animals of the same species, the original source of infection is probably in all cases extraneous—either from mankind or from cattle.

In the case of the human and the bovine disease the conditions are different. In both these species tuberculosis is an extremely common affection. Contagion in cattle tuberculosis can frequently be traced without difficulty, and its source is in other cattle similarly diseased. We have seen from the experiments just described that a human origin of the cattle disease is hardly conceivable. If it occurs at all it must be under most exceptionally rare conditions. On the other hand, we may assert, I think without begging the question, that in most cases at least human tubercular disease has its origin so far as contagion is concerned in other similarly diseased human beings. We have here, then, the conditions on which depend the evolution of stable racial characteristics in the bacteria; namely, long-continued invariability of environment. We find, therefore, in these facts a theoretic justification in assuming, at least hypothetically, the existence of two races of mammalian tubercle bacilli, the human and the bovine. Practically this assumption is supported by the facts in reference to differences of morphology and pathogenic virulence just discussed.

DEDUCTIONS.

From the foregoing data we have now presented to us the task of deciding whether the experimental evidence tends to support or to refute the view that human consumption may at times have its origin by contagion from cattle. I can best introduce my own views on this matter by a quotation from my first report on tuberculosis, already referred to: "It can not be said that the facts here presented remove the question in any degree out of the domain of speculation. They really furnish more food for theorizing, and may either diminish or increase our suspicion of dairy products according to the process of reasoning employed. It may be argued, for instance, since bovine tubercle bacilli have been shown to be equally as virulent as those of human origin for all animals tested, and more virulent for some, the presumption is that they are more virulent for mankind also. Contrarywise it may be said that human tubercle bacilli being shown to be less adapted for growth in cattle than the bacilli of bovine origin, there is reason for believing that the converse may also be true." "If the bovine bacillus be regarded as merely a more highly virulent modification of the human variety, this should be shown by the greater gravity of the lesions produced by comparative inoculation experiments on all species of susceptible animals. If, however, there is a selective feature shown by such inoculations, the excess of virulence of the bovine variety being manifested only toward certain species of animals, some support would be gained for the theory of a distinction of races other than that founded on a mere difference in degree of pathogenic activity."

The tests necessary to determine this latter point have since then been made and the records are contained in my second report[14] on tuberculosis (1900).

The bovine tubercle bacillus has been shown by these experiments to possess an indiscriminate and not a selective excess of virulence over the human specimen. Similar results have been obtained by Pearson and Ravenel of Pennsylvania and by Koch and Schütz of Berlin.

In a purely speculative question it is a matter of everyday experience that the same data may lead to entirely different deductions. Professor Koch, whose attainments and achievements in bacteriology we all respect, has deduced the inference, largely, as we infer, from his experimental work on animals, that bovine tuberculosis can constitute no factor in the initiation of tuberculosis of man. Few of us, I think, will be able to follow this process of reasoning. Whether or not his view is correct it can hardly be said that it derives any support from the purely experimental evidence. I think there is a wide field for investigation yet to be covered before we as sanitarians can feel justified in recommending the discontinuance of those safeguards against infection from tuberculous dairy products which an unwilling public are just beginning to appreciate.

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DISCUSSION*

ON PAPERS OF DRS. KNOPF, APPEL, CARRINGTON, BONNEY, STUBBERT, SALMON AND DINWIDDIE.

DR. M. P. RAVENEL, Philadelphia—We can hardly speak of this question without bringing in Koch. As you are aware, he laid down two propositions: First, that human tuberculosis differs from bovine and can not be transmitted to cattle; and second, that if man is susceptible to infection from cattle at all it is so rare an occurrence as to make precautions unnecessary. Now the first of these propositions is capable of being subjected to experimental proof. You will remember that Koch, in the experiments conducted by Shütz and himself, did not succeed in producing bovine tuberculosis with the human bacillus. In my opinion the conclusions of Koch were based on an insufficient number of experiments. At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, we have succeeded in doing what he failed to do, and I have placed in the Scientific Exhibit specimens of animals that were infected with the human disease. One shows the liver and diaphragm to be affected. This was the result of an attempt we made at obtaining immunization; we got a result we did not wish for, but one that is of importance in establishing the fact that human tuberculosis can be communicated to animals. We must acknowledge that bovine animals, as a rule, show a high degree of resistance to infection from man.

Generally speaking, the pathogenic power of the bovine tubercle bacillus is considerably greater than the human for all experimental animals. Of course, this does not prove that bovine tuberculosis can be transmitted to man, but this can be proved without any trouble. We can not, it is true, carry out experimental tests as we do on animals, but there is a large

* The papers of this Symposium on Tuberculosis which have already appeared will be found in the following issues: Dr. Knopf, November 22 and 29; Dr. Appel, November 29; Drs. Carrington, Bonney and Stubbert, December 6.

The Symposium will be completed later by the following paper and its discussion:

Sanitary Measures for the Prevention of Tuberculosis in New York City, and Their Results. Herman M. Biggs, M.D., New York City.

amount of evidence available of accidental inoculation of man from cattle. It is well known that the usual tendency of skin infections is to remain localized, but in the case of infection from bovine tuberculosis it has been shown that it may become systemic, a number of cases being on record in which the disease became general following a local infection and ended in death. Four cases of accidental inoculation of man by the bovine tubercle bacillus have been reported to the Pathological Society of Philadelphia, accompanied in three instances by the exhibition of the specimens. Two other cases have been reported by Dr. Hartzell of the University of Pennsylvania, in which, though the bovine origin of the infection was not absolutely proved, it was highly probable. They occurred in strong, healthy men who were employed in cleaning cattle cars. They contracted skin tuberculosis following slight injuries to the hand by broken timbers. In one the disease spread to the lungs and other internal organs, and the patient died within a year. The other recovered under local treatment. Where a man has a local tuberculous affection starting on the back of his hand, and extending to the lung and other organs, I think we are justified in saying that the disease has come from the local infection. I admit freely that there are gaps in our evidence, but it is at least as clear and convincing as that we accept daily and without question when the source of a case of scarlet fever or typhoid fever is under examination. The fact is, positive demonstration of direct transmission of most diseases is extremely rare.

Since interest has been revived in this subject by Koch's paper, in which he repudiated his former views as to the intercommunicability of human and bovine tuberculosis, numerous reports have appeared of cases of the kind referred to, in which persons were accidentally inoculated. In Berlin alone five cases have recently been reported, all occurring in men employed in slaughter houses, and commencing in wounds about the hands.

It would seem that instances of infection through wounds are not as uncommon as has been supposed heretofore. Their value has been questioned on the ground that inoculations do not always correspond to natural infections. I do not pretend that such cases settle the whole question definitely, but they do prove beyond question that there is no peculiar quality in the tissues of man which makes him an unfit soil for the bovine tubercle bacillus. Furthermore, they afford us means of comparison with similar cases in which the invading organism is of human origin, wounds of the hand while operating on tuberculous cadavers, or in cleaning cuspidors used by phthisical persons, being not uncommon. I have been at some pains to study the reports of such infections, and feel bound to conclude that the bovine bacillus is at least as virulent as the human for man when introduced in such manner. We know from experimental as well as clinical evidence that the skin is the tissue most unfavorable to the growth of the tubercle bacillus. If, then, the bovine bacillus can successfully invade the skin and multiply there, with the production of characteristic changes, it seems we are fully justified in believing that organs and tissues that are known to offer favorable soil to the human bacillus will also prove favorable to the bovine organism. On the other hand, I know of no animal which is susceptible to the human bacillus yet immune to the bovine. Birds are equally refractory to both, a small proportion of those inoculated or fed with either succumbing to tuberculosis.

The next point in this discussion is to controvert the idea that a food infection must be looked for solely in the intestine. By so doing you leave out of consideration the pharynx and tonsils, both of which are important avenues of infection.

In our work at the laboratory of the State Live Stock Sanitary Board we have often been struck by the extensive involvement of the lungs in animals infected by feeding, and the slight injury of the intestines. Indeed, in some animals it has been impossible to detect any involvement of the intestine at all.

In a cow which was fed with bovine tubercular material, both lungs were involved and had cavities in them. The bronchial glands were enlarged and showed small nodules. The mediastinal glands were enlarged and softened, but showed no nodules. The mesenteric glands were normal, and no lesion of the intestinal wall could be found.

In a monkey fed with a pure culture obtained from the mesenteric gland of a child both lungs were involved throughout and to a much greater extent than the abdominal organs. The bronchial glands were enlarged and caseous. In the intestine only one point of injury could be found, and most of the mesenteric glands were normal in size, and showed a few nodules 1 mm. in diameter. Three glands associated with the upper intestine were much enlarged and showed caseation, though not more advanced than what was seen in the bronchial glands.

The specimens from the monkey illustrate another important point, namely, the occurrence of coincident infection through the upper part of the digestive tract and the intestine. If this animal had been examined without the knowledge of its history it would almost certainly have been put down as one of those cases in which the avenue of infection could not be positively determined. The lungs show much more extensive disease than any of the abdominal organs, and the bronchial glands show caseation, as well as some of the mesenteric, and to an equal degree. This monkey was tested with tuberculin before the experiment began, and was in perfect health when the feeding with tubercle bacilli commenced. The key to the situation lies in the enlargement and caseation of the cervical lymphatic glands, indicating an infection through the tonsils or some neighboring part of the upper digestive tract, though no lesion could be detected. We have here an undoubted food tuberculosis, yet the respiratory tract shows the chief involvement. Does not the same thing occur also in children, and more often than we suspect?

In another experiment, four swine were fed with pure cultures of tubercle bacillus. In three of the four there was extensive destruction of the tonsillar tissues, and in all widespread involvement of the lungs and other organs, while in one only could any trace of injury to the intestine be found. We are surely justified in believing that similar things occur in children. If the milk with which a child is fed happens to contain tubercle bacilli, they naturally find lodgment in the tonsils, owing to the frequency of feeding and the structure of the tonsils.

The number of cases in which infection can be directly traced to the consumption of tuberculous milk is not large, and almost all of them are open to some criticism from the fact that all other sources of infection can not be positively excluded. We can not shut children up and feed them with tuberculous milk by way of an experiment; but the evidence furnished in many of the cases which have been reported is so clear that, as Nocard has well said, "It has almost the value of an experiment," and there is no room to doubt that such infection does occur. In our experimental work we have had convincing proof of this. We have isolated from the mesenteric glands of two children who died of tuberculosis cultures of the tubercle bacillus which are virulent for cattle. From one of these children we obtained a culture which was extremely virulent, causing death in a cow 6 years old in 18 days, with extensive and typical lesions. Now it follows that one of two propositions must as a consequence be admitted: Either we have found a human tubercle bacillus having a pathogenic power for cattle quite as great as any bovine germ, or else we have found in the mesenteric gland of a child the bovine tubercle bacillus. In other words, the human tubercle bacillus is at times just as virulent as the bovine, or else the child has been killed by infection derived from bovine sources. For many reasons I am inclined to believe that the latter is the true explanation.

In children tuberculosis shows a marked tendency to become generalized, and it is in them that we have most reason to fear infection by food, their diet consisting so largely of cow's milk.

To sum up: Of one thing I have no doubt whatever, and that is that bovine tuberculosis constitutes a grave source of danger to human health. No doubt there may have been exaggeration in the past as to the number of cases of tuberculosis that were directly traceable to the dairy; but even if this exaggeration had been ten times as great, it does not justify

the attempt now being made to blind ourselves to it as a source of infection. A danger is best guarded against when best recognized; and while I do not at all deny that there are many other sources of infection, I say that in tuberculosis of cattle we have something that must be guarded against, and that it is our duty to educate the public on this subject with a view to the adoption of every possible precaution to prevent the spread of the disease by this as well as by other means.

DR. S. A. KNOPF, New York—I was one of those who had an opportunity of listening to Koch's address in London, and I shall never forget the sensation it caused. The very moment he sat down, however, the venerable Lister got up to oppose the views that had been advanced, and the majority of the other speakers were very much in favor of what Lister said, or of at least suspending judgment until the matter had been more fully investigated. As the result of experiments that have been made since by Dr. Ravenel and others I believe that we are abundantly justified in saying that the two kinds of tuberculosis are interchangeable. For my own part, I have not made any laboratory investigations myself to prove or disprove Koch's theory. If, however, any one in authority came to me with strong laboratory evidence that bovine tuberculosis could not be transmitted, I still would have great hesitation, after what I have observed clinically, to give a child milk from a tuberculous cow. Most of us, I think, are pretty well convinced that bovine tuberculosis can be transmitted to human beings, and that every conceivable precaution should be taken to safeguard the public from this source of infection.

But there are some points in regard to which I can not agree with Dr. Appel. He spoke, for example, of patients being "clinically cured," and by way of explaining what he meant, he said he was in the habit of injecting tuberculin to see if the disease was eradicated. That is a practice against which I must protest. How many of us after being pronounced cured would care to submit to a tuberculin test? For my part I hesitate to use tuberculin even for diagnostic purposes. I do not think it at all necessary or desirable that we should subject patients who have been apparently cured to such a dangerous experiment. I have in mind a case that should act as a warning to all of us—that of a prosperous young merchant about whose symptoms there was some doubt, and who was given a small dose of tuberculin, resulting in general tuberculosis and death within a few weeks. As to the supposed therapeutic value of tuberculin, I will say that I shall continue to refrain from its use until we know a great deal more about its action than we do now. I repeat, that I consider it a very dangerous experiment to use it on a patient who is thought to be cured. I try to keep abreast of all the literature on the subject, but I must say I never read of any one else doing such a thing. As to the description of the sanatorium, it was in all respects very interesting, but I would like to ask Dr. Appel how far apart the beds are.

DR. APPEL—They have 4,000 feet of air space and are some three or four feet apart.

DR. KNOPF—I am afraid that three feet is hardly enough. Patients with dry coughs are apt to spread the disease through drop infection, and therefore I would be in favor of having them further apart.

I have no doubt Dr. Bonney is well justified in all that he has said about the beneficial effects of the climate of Colorado, but the unfortunate thing is that we can not give change of climate to the majority of our tuberculous patients, however much we might desire to do so. We must treat the great majority of them at home, and until we realize that fact we will not make much progress in the solution of the tuberculosis problem so far as the great masses are concerned.

DR. BOARDMAN REED, Philadelphia—It seems clear to my mind that human tuberculosis can be transmitted to animals. That, I think, has been thoroughly proved. The difficulty is as to the converse proposition—the transmissibility of bovine tuberculosis to man. I am convinced that that likewise has been pretty well established. Koch says it has not been proved positively, and no doubt it is not easy to do so. But there is one way by which it might be done, and that is to allow criminals condemned to death to be placed in the hands of responsible medical men for the purpose of experiment. Many of them would consent to take the chance of escaping from death. The governments of many of the states would no doubt grant the privilege if properly approached, and with a view thereto it might be well to have a motion passed on the subject if the section approves of the suggestion. There is one other point to which I would like to allude. In Dr. Stubbert's very able and practical paper he spoke of the methods of treatment in cases of dilated stomach. That is a matter of very great importance and one that requires the exercise of great caution. It is especially necessary so to regulate and limit lavage when this is required as to avoid washing out any portions of partly digested food. The best time to practice lavage in these, as in most other cases of gastric dilatation, is in the morning before breakfast. Tuberculous patients are generally ill nourished and lavage is often badly borne by them, especially when frequently done or too soon after eating.

DR. C. L. MINOR, Asheville, N. C.—I believe that our sanatoria will not be complete until the French idea is carried out, and each of them has a convalescent farm attached to it. If people go back to the slums they will soon relapse into the condition they were in before. The only way to ensure their recovery being permanent is to afford them facilities for outdoor work for a time in a suitable climate, and this can best be accomplished by means of sanatoria farms, such as are now so common in France.

As to Dr. Knopf's paper, I have tried Japanese handkerchiefs and cheesecloth as sputum receivers for the patient while walking or away from home, but I am not satisfied with either or with the ordinary sputum flask, whose opening is far too small for cleanliness. Something better is required, and down in the exhibit hall I saw a contrivance in the shape of a telescoping cigar case of paper that impressed me very favorably. Something in that line or like that shown by Dr. Appel is called for. One point in Dr. Appel's paper struck me very forcibly: the tendency to over-exercise. The general practitioner is too apt to tell the patient on sending him away to Colorado or elsewhere to take all the exercise he can. We ought, on the contrary, to warn our patients against fatiguing themselves with too much exercise. They should take all the rest they can. That is the first consideration. They can not do themselves any harm by over-rest, but they can kill themselves with over-exercise.

DR. A. ROBIN, Newark—There have been in literature numerous references to tuberculin, and I rise simply for the purpose of saying that I do not see anything in it which would produce miliary tuberculosis. Were it so, the extensive use of tuberculin in the diagnosis of tuberculosis in cattle would result in many cases of generalized tuberculosis. I thought the consensus of opinion in the profession was that the tuberculin test was a perfectly harmless procedure. I do not see any objection whatever to using it for diagnostic purposes.

DR. H. D. HOLTON, Brattleboro, Vt.—I would like to ask Dr. Ravenel whether the symptoms of the disease he found in the autopsies on the children were in the pearl-form of lesion.

DR. RAVENEL—You usually find them in large numbers clustered round nodules.

DR. STUBBERT—As to the tuberculin test, while I do not feel so strongly as Dr. Knopf, I am bound to say that I have never been inclined to use it for diagnostic purposes, and I would be very much afraid of lighting into renewed activity an arrested tuberculous focus if I were to use it to see whether a cure had been effected. Besides, it is well to remember that even for diagnostic purposes it can not be implicity relied on, because we can obtain a reaction from syphilis as well as tuberculosis, and in a given case it is never certain which it is. As to the arrangement of sanatoria, I believe that separate buildings are better than any dormitory. I agree with Dr. Reed, that we can not exercise too much care in connection with the treatment of the stomach. As to the *x*-rays, I have simply to add that I think they possess great possibilities of usefulness. Finally, to say what may seem hardhearted—we have to fight public sentiment and abandon the policy of wasting money building sanatoria for incurable cases. If we are to make headway against the disease, we must concentrate our attention to a much greater extent on cases that can be cured. Unless we do this we will find our-

selves in the position of the man who writes on sand at the seashore, all of whose words are washed out by the incoming waves as fast as he writes them. The fact that the board of health in New York City has been able to reduce the number of tuberculous cases in the past three years 35 per cent. by simply educating, in a limited way, the tenement dwellers, makes it reasonable to suppose that, if we would concentrate our efforts on curable cases of tuberculosis, we could almost totally eradicate this dread disease.

DR. H. M. BRACKEN, Minneapolis—Dr. Knopf referred in his paper to some states where tuberculous subjects are taken care of if they are criminal or insane, but not otherwise. One of the states thus referred to was Minnesota. Now I think we should guard against speaking sneeringly about any efforts that are being made to check this dreadful disease. We must take conditions as we find them, and remember that there may be circumstances to account for apparent anomalies of the kind referred to. It by no means follows that in Minnesota and other places where provision has been made for the care of the criminal and insane we are indifferent to the welfare of those who do not belong to either class. It simply means that we have got those classes segregated in such a way that they can more easily receive attention. Efforts are being made in all the state institutions of Minnesota to look after and improve the health of the inmates. Reference was also made to the ease with which legislation can be obtained for the suppression of bovine as compared with human tuberculosis. I am afraid there is too much ground for this criticism.

DR. R. C. MOORE, Omaha—We have heard some excellent papers on the sanatorium treatment of tuberculosis, but all of them come from gentlemen who have charge of institutions that are situated in the most favorable climatic conditions. I think it is unfortunate that we have not heard from any of those who have had experience in institutions not so favorably situated. A little to the east of us is one of the most liberally conducted institutions of the kind in the United States. I refer to the Massachusetts State Sanatorium at Rutland. The report published by the managers of that institution gives results quite as good as those obtained by Dr. Appel and Dr. Carrington under the most favorable climatic conditions. All of you know that New England has one of the bleakest and most uncomfortable climates to be found in the country, and if such excellent results can be obtained by sanatorium treatment there, it is a matter of great importance, for it shows that it will no longer be necessary for us to transport our patients thousands of miles in order to get salubrious climates. I wish there were some one present who had had practical experience in some of these eastern sanatoria, for it is practically impossible for us to send the majority of our patients to those distant places with fine climates. Out of every hundred tuberculous patients there are sure to be more than ninety who are unable to leave their homes. These are the people that must be provided for, and there is only one way by which this can be done, namely, by the states establishing sanatoria in the immediate vicinity. There should be an institution of the kind in every district where there is a sufficient population to demand it.

DR. S. G. BONNEY, Denver—The last speaker has claimed more for the sanatoria in the east than the gentlemen who conduct them have ever cared to claim. We should remember that their results and conditions are not comparable in any way with those submitted in the papers that have been read to-day. There is a vast difference in the character of the cases. Dr. Appel and Dr. Carrington have to take the cases as they come—many, perhaps the majority of them, broken-down old soldiers and sailors, not a few of them with alcoholic histories. We have been given some very favorable reports as to what can be done in these cases by means of sanatorium treatment under favorable climatic conditions. At some of the eastern institutions they do not take the cases as they come, but are permitted to select them. Even those who do gain admission are not chosen in accordance with their order of application, but according to the more or less favorable condition. There is frequently a long waiting list, and those are selected from it whose symptoms give promise of the most speedy recovery. If Dr. Moore will read the reports carefully he will see the necessity for distinguishing between the cases and the results, which are not properly subject to comparison.

I think it was Dr. Appel who spoke of breathing exercises, and said that after three years in the west his own chest measurement had increased three inches. I am not prepared to admit that this was entirely due to breathing exercises. Some time ago a troop of soldiers went to Fort Logan from near the sea level. Their measurements were taken at intervals, and after a time, at an elevation of 5,000 feet, it was found that they showed an average expansion of two inches. So it does not follow that the increase in measurement which the Doctor tells us he has obtained is due to the breathing exercises. Personally, I am opposed to any breathing exercises for consumptives at high altitudes. I am opposed in general to any effort to compress the lungs by means of nitrogen gas or otherwise, and I am also opposed to all measures looking to their expansion. We are too apt to lose sight of the fact that it is the tuberculous individual rather than the tuberculous lung that we are treating. We should keep our patients quiet and get them into the way of leading a life of inactivity and indolence for the time being.

Another point I would criticise was the system of classification referred to by Dr. Appel. As I understand him, he divides his cases into three classes according to their stage as shown by (1) infiltration, (2) consolidation, (3) caseation I think it is fallacious for us to make any prognostic classification according to physical signs. We may compare a dozen cases and be utterly unable to form any prognosis according to physical signs *per se*. Other factors must be taken into consideration, and they are so important as to make any such attempt at classification of little if any use, beside being misleading.

DR. APPEL—As to Dr. Knopf's objection to the use of tuberculin as a test of cure, I must say that in an extensive use I have never observed any harm resulting from it in the way we use it. We get it from Dr. Baldwin, who prepares it at Trudeau's laboratory at Saranac Lake, where it has been used for years, and I am assured without any deleterious effects. When the diagnosis is doubtful we use it in conjunction with other means to establish the presence or absence of the disease. We adopt every means to make a diagnosis, and I believe the tuberculin test equally as satisfactory as is the Widal test in typhoid fever. The classifications made in my paper were not intended to be scientific classifications for the study of the disease. The first divides the cases as we practically separate patients in their dormitories, those who have no bacilli being in separate dormitories, while the permanently febrile are kept in the infirmary. The other class consists of those with bacilli who have no fever, some having been temporarily febrile. The other classification was made for the purpose of charting the cases and to compare our results with others. I can not concur in the opinion of Dr. Stubbert as to the prognostic value of the position of the heart. In many cases its position is changed by contracted adhesions. As to breathing exercises, I never saw any bad effects from them. Of course, they are made gently and the patients are cautioned not to make any violent muscular effort. Dr. Bonney has suggested that the increased girth of the chest is due to the altitude and not to these exercises. In my own case I served for many years in high altitudes before, and the girth of my chest had not increased. In the experiment with the soldiers, which he quoted, they are compelled to regularly take prescribed setting-up exercises, which are intended to increase the size of the chest.

DR. KNOPF—It is quite true, as has been stated, that I spoke of some states taking care of the insane and others of the criminal classes while they did nothing for the sane and the non-criminal. I did not wish to imply that it was wrong for those states to care for the classes referred to. I only wished to emphasize the necessity of likewise taking care of those who come under neither category. Dr. Appel seems to

have misunderstood my remarks about dormitories. I think there is a danger of patients expelling small particles of bacilliferous saliva during dry cough, and if the beds are too close together drop infection is possible. As to breathing exercises, I have taught them for years to my patients, and, as in Dr. Appel's case, the teaching led to an increase of my own chest expansion; but I only had New York air, while Dr. Appel had the clear, dust-free atmosphere of Fort Bayard.

Mr. Chairman: I move the adoption of the following resolution:

RESOLUTION ON TUBERCULOSIS.

Resolved, That in view of our knowledge that several European governments have established national governmental tuberculosis commissions, and recognizing the fact that tuberculosis is likewise with us a very prevalent and a preventable disease, the Section of Hygiene and Sanitary Science recommends that the American Medical Association address an appeal requesting the proper federal authorities to create a United States Tuberculosis Commission for the study, investigation and prevention of tuberculosis in man and animals.

DR. BENJAMIN LEE, Philadelphia—I have much pleasure in seconding the motion. This question has now been raised to the dignity of a National one. Until we had reasonable ground for believing that bovine and human tuberculosis are intercommunicable and that the condition is one which is, to a large extent, curable, we would not have been justified in calling on the National Government to interfere. I believe, however, that the time has now arrived when we can with propriety ask the American Medical Association to use its influence with the government to get such a commission established. It will not be creating a new precedent, for, acting in co-operation with the American Public Health Association, we have already induced the government to undertake the investigation of yellow fever and the possibility of its prevention. It is true that in the case of the latter disease the conditions were such that the commercial instinct could be appealed to more easily. Yellow fever interfered with commerce over a considerable portion of the country, and therefore it was not difficult to get the ear of Congress. It is doubtful if we shall as readily succeed in our efforts in regard to tuberculosis, but, none the less, it is our duty to make the attempt.

(The motion was adopted and referred to the House of Delegates and referred back to the Section for elaboration. See THE JOURNAL, June 21, 1902, p. 1658.)

DERMATITIS REPENS.*

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PHILADELPHIA.

In 1888 Crocker first called attention to a peculiar inflammation of the skin to which he gave the name dermatitis repens, his description of the disease being based on three cases, of which the following is a brief summary:

CASE 1.—The first case occurred in a young man who had had a portion of a finger amputated on account of an injury. The operation wound healed in normal fashion, but at its border a dermatitis, resembling in a general way an eczema rubrum, began which gradually spread up to the palm and over the fingers. The surface was denuded of its epidermis, was intensely red, oozing a clear fluid like sweat from numerous points around the sharply defined borders of the patch, which consisted of undermined epidermis elevated by fluid. The inflammation continued to extend for some months until it reached the elbow, the hand in the interval having recovered its normal condition. After trying applications of silver nitrate and copper sulphate without favorable results, recovery took place under continuous application of lactate of lead.

CASE 2.—The second patient was a weak, nervous woman, 28 years of age. The inflammation began on the flexor surface of the wrist with an eruption of red papules, which coalesced and discharged. It spread down the hand and up the arm, presenting a well-defined border covered with thick crusts; it ultimately reached the shoulder, spread across the back of the neck and down the other arm to the elbow, the older parts of the disease in the meantime healing. It was finally cured by cutting away the undermined epidermis and applying a 10 per cent. solution of permanganate of potash until it formed a crust.

CASE 3.—The third of these cases occurred in a young man, 19 years old, and was much milder than the two preceding. The disease began as an eruption of small blisters on the wrist one year before, spreading to the arm and hand until the whole palm and fingers, except the terminal phalanges, were involved. Recovery took place in about three months.

In 1892, in a short paper read at the International Dermatological Congress held at Vienna, Crocker again called attention to the malady, reporting two new cases and referring briefly to others which had been under his own observation or that of others. In this paper he describes the affection as "a spreading dermatitis starting from an injury to the skin . . . usually manifested by a free exudation of fluid in the form of vesicles, or a bulla, the result of which is the complete denudation of all the upper layers of the epidermis, leaving an intensely red surface oozing in numerous points. . . . The disease spreads by direct extension, not by the formation of fresh foci either near or away from the original morbid area. It may extend over a part or the whole of a limb, or even over a large portion of the body, and is not accompanied by marked itching, burning or disturbance of the general health. Finally, although very rebellious to treatment, it ultimately yields to local remedies of an antiseptic character while internal remedies appear to have no effect." In all the cases except two the disease was preceded by and started from an injury of some kind, trifling or severe. The youngest patient in whom the affection was observed was a girl of 11, in whom it followed the running of a splinter under the nail; the oldest was a man, 87 years of age, in whom the eruption appeared 48 hours after an injury to the left shoulder and arm. In 1896 Stowers reported a case as follows:

CASE 4.—A woman, 67 years old. Fourteen days after a confinement, when she was 29 years of age, a small "gathering" was noticed in the matrix of the right thumb-nail which was followed by loosening and detachment of the nail. This never healed according to the statement of the patient, small pustules appearing around it from time to time. A year later the left thumb became affected in a similar manner, and subsequently some of the fingers with the nails were involved at intervals of several months. At a much later period the toes began to be affected, the nails of which were lost. Severe burning pains, such as often accompany peripheral neuritis, were frequently present for long periods in the affected areas. Microscopic examination for the ringworm fungus gave a negative result.

Frèche has reported as "a trophoneurotic eruption of the extremities recalling dermatitis repens," the following case:

CASE 5.—A man, 48 years old, after some months of fatiguing labor, began to suffer from severe nocturnal pains starting in the nape of the neck and extending along the arms, accompanied by sensations of heat in the hands. Some four or five months after these pains had almost entirely ceased, a brownish patch appeared on the nail of the right thumb without any apparent injury, although there was a doubtful history of a prick with a thorn. Some days later redness and swelling appeared about the insertion of the nail, then pus, which loosened the nail and the epidermis. The disease gradually spread into the palm and the other nails became diseased; and at a later period analogous lesions showed themselves on the left thumb. All the palm of the right hand and the palmar surface

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. W. T. Corlett, L. Duncan Bulkley and W. L. Baum.

of the fingers were deprived of epidermis, forming a large excoriated plaque. The skin was a deep red, smooth, sprinkled over with miliary pustules, and oozing abundantly. The diseased area was sharply delimited by a collarette of undermined and macerated epidermis.

The author regarded the case as closely resembling the one reported by Stowers, having as its cause trophic troubles of nervous origin. Hardaway very briefly mentions a case under his observation which followed a hangnail, and which lasted for some months, and Hyde and Montgomery refer to three cases under their care, but give no details as to their clinical features.

Hallopeau has reported a number of cases of a peculiar inflammation of the skin, usually situated on the upper extremities, which present clinical characteristics resembling in many particulars those present in the cases reported by Crocker, to which he at first gave the title *polydactylites suppuratives recidivantes,* later *acrodermatite suppurative continue.* He regards these cases as representing an affection quite distinct from dermatitis repens, and believes the cases of Stowers and Frèche, referred to above, to have been examples of this acrodermatitis rather than dermatitis repens. As to the origin of this peculiar dermatitis, he believes it due to microbic, probably staphylococcic, infection whose port of entry is some traumatism.

CASE 6.—In February of this year, Mr. G. A. L., 43 years old, a civil engineer by occupation, consulted me on account of an affection of the hand which had begun about four months previously. On the palmar surface of the terminal phalanges of the middle and ring fingers of the right hand, and over the greater part of the hypothenar eminence were sharply circumscribed, rounded, desquamating patches, the borders of which were formed by a collarette of undermined epidermis, from beneath which oozed a fluid at times yellowish and transparent, at others purulent; and slightly in advance of the undermined borders of the patches was a narrow, pale-red areola. The center of the patches was in places scaling, in others bright-red and comparatively smooth. Beyond a slight feeling of stiffness, there were absolutely no subjective symptoms. In addition to the palmar lesions just described there were a few small, discrete vesicles on the sides of the fingers.

According to the patient's statement the disease on the hand had been preceded by lesions of a similar kind on the foot, but these soon disappeared; and shortly after it appeared on the hand, attacking the terminal phalanges of all the fingers and the hypothenar eminence. The index and little fingers soon recovered their normal condition, and at the time the patient came under my observation these, as well as the foot, showed nothing abnormal. During the first two weeks after coming under my care the disease slowly but steadily advanced toward the center of the palm, the patch on the hypothenar eminence being particularly active, numerous pin-point-sized vesicles and pustules appearing from time to time about its borders which became more markedly polycyclic. A noteworthy peculiarity of the disease was that the extension of the patches invariably occurred toward the center of the palm, leaving the parts over which it had passed either red, dry and scaly, or smooth and almost normal in appearance. Occasionally a few small pustules appeared in the center of the patches, but as a rule such lesions were confined to the advancing borders, there being no recurrence in parts once gone over by the eruption.

At first a salicylic acid paste, varying in strength from one to three per cent., was applied; later this paste was used in combination with a lotion of mercuric bichlorid, 1:2000. These remedies produced some slight improvement in the condition of the skin, but did not retard the progress of the disease, which spread slowly but steadily day by day. The edges of the patches were then painted with a solution of formalin in glycerin, at first one-half dram, later one dram to the ounce, and this was followed by Brooke's paste well rubbed in, these applications being made twice a day. Marked improvement followed this method of treatment; and when the patient was last seen he was practically well. I have recently learned, however, that, while the palm remains well, a few vesicles have again appeared on the fingers.

In its principal features the foregoing case agrees with those reported by other observers, more particularly with the cases described by Crocker, and evidently is to be placed in the same class. As to its pathology, I am quite convinced, from its course and the result of treatment, that it was an infection of some sort, but I am unable to form any opinion as to the character of the infecting agent. Although it presented few of the characteristics of trichophytosis, repeated examinations of fragments of epidermis from the borders of the patches for the trichophyton were made, but always with negative results.

As to the pathology of the malady in general, Crocker regarded it as a peripheral neuritis starting from a traumatism which caused a superficial dermatitis, and was followed in turn by microbic infection. Hallopeau, as has already been mentioned, considered it due to staphylococcic infection occurring in a specially predisposed soil, while Frèche considered his case a trophoneurosis.

It seems to me likely that this peculiar form of dermatitis is not always due to the same cause, but that in some instances it represents an infection, while in others—as in one of Crocker's cases in which the eruption appeared within a few hours after an injury to the shoulder, and the case reported by Frèche—it is most probably neuritic, atrophic disturbance following an injury and consequent inflammation of the nerves supplying the affected areas.

DISCUSSION.

DR. F. H. MONTGOMERY, Chicago—In the three cases of Dr. Hyde and mine to which Dr. Hartzell has referred the symptoms accorded closely with the description given by Crocker. The fact that these and other cases recovered with the use of parasiticides points strongly to their parasitic origin.

DR. H. W. STELWAGON, Philadelphia—A case came under my observation a few years ago which showed a somewhat more inflammatory condition than that just described. In the several cases I have met it has always seemed to me that the milder antiseptic treatment was more successful than severer measures. I have always employed a saturated boric acid solution, applying it thoroughly, and while the parts are still wet with it sprinkling on a boric acid dusting powder. This is repeated twice daily.

DR. HARTZELL—The case which Dr. Montgomery referred to would seem to confirm the view that the disease is a form of infection. In most cases where the treatment has been effective the remedies have been parasiticides, and this lends probability to the view that the disease is due to infection.

Railway accidents and injuries are not appreciated by the public. It is well known that any official statistics fall short of the actual number, and yet the reports of the Interstate Commerce Commission show that during the ten years ending 1900 there were killed 68,837, an average each year of 6883, and in the same time there were injured 387,803, an annual average of 38,780 a year, or a grand total of 456,640, averaging 45,663 per annum. And the rate of increase is greater each year, the number in 1900 being over 46,300. What an excitement and alarm there would be if a war should break out between two of our states in which there were within one year casualties amounting to about 50,000! Nothing better illustrates the dulling effect of repetition and monotony. And yet these 50,000 deaths and maimings are as expensive, as unnecessary, and as criminal as would be those of the expensive, needless, and sinful war. Whose is the fault and what is the remedy? The fault is public indifference, and the cure is public determination to hold to a strict responsibility the railroad companies and the legislatures now so recreant to their trust.—*American Medicine.*

DERMATITIS HIEMALIS.†

A RECURRENT INFLAMMATION OF THE SKIN ASSOCIATED WITH COLD WEATHER.*

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In 1883 a patient presented himself with a peculiar eruption on the back of the hands. It resembled to a slight extent lupus erythematosus, and also suggested the possibility of ringworm. The patient was a medical man and furnished careful details as to the previous history of the eruption. It was first noticed twenty years before, during the winter months, and reappeared at the first approach of frost each successive winter. It remained during cold weather in spite of treatment from which he had derived no benefit, although it invariably disappeared at the advent of warm weather in the spring. Noting the influence that cold weather had on the eruption, the patient on several occasions had made trips to Florida and to other warm climates, when invariably the disease spontaneously disappeared. During the eleven years following this first observation, 14 cases came under the observation of the present writer bearing a close resemblance both in clinical appearances and in the apparent effect of cold weather in their causation. A report of these cases, with colored drawings and photographic illustrations, was presented before the International Medical Congress at Rome in 1894. In this report attention was, I believe for the first time, called to a cutaneous eruption having definite clinical symptoms, following a fairly uniform course, and always associated with or limited to cold weather. The disease first attracted my attention by its obstinacy to treatment, while almost invariably it disappeared, either with or without treatment, at the approach of warm weather. In time it became possible to recognize the disease and to foretell its probable course from the clinical picture presented.

At first the affection seemed most closely allied to eczema, the disease having two of the most prominent symptoms of this affection—watery exudation and itching. Like eczema, the exudation was more pronounced during the first attack and the itching was decidedly paroxysmal in character. The latter symptom varied in different cases, and in many instances it was described as a tingling or burning sensation. Unlike the eczema I had been accustomed to observe, however, this disease disappeared at the approach of warm weather and returned the following year as winter approached. The seat of predilection was on the back of the hands, including the fingers, and around the wrists; very rarely had it been observed in the corresponding positions on the feet, and never on the trunk, arms or thighs. Again, unlike eczema, the lesions were circumscribed, well defined, often elevated at the margin, while the central area was somewhat depressed, with a tendency to spontaneous recovery, which gave to the eruption in many instances a striking resemblance to ringworm. In fact, some of the French and Italian dermatologists who were present at the congress at Rome were inclined to look on the affection as a peculiar form of ringworm. It was further noted that all symptoms were aggravated before any marked atmospheric change, the most noticeable being storms from the great lake region of the northwest. It was observed that neither occupation nor sex had any etiologic influence, as it occurred in artisans, students and people of leisure. Men and women were about equally affected. The histologic findings made at the time failed to reveal any distinctive changes in the skin, being those of an ordinary inflammation, which varied in degree according to the character and extent of the lesion.

Later, in 1894, the same communication was presented before the American Dermatological Association. At this time one of the Canadian and one or two American members recognized the clinical features as applying to cases they had encountered, and the opinion was again expressed by some of the members present that the illustrations bore a striking resemblance to the vegetable parasite dermatoses, and the advisability of a careful investigation with this in view was suggested. Accordingly, in 1896, a second report was read in London before the International Dermatological Congress. In this communication it was shown that in four cases excised portions of the skin examined by Dr. H. S. Upson and the present writer for saprophytic organisms, gave a negative result.

REPORT OF CASES.

Since the last report the following cases have been observed:

CASE 15.—J. R. C., male, aged 64, presented himself Nov. 27, 1894, with an eruption, and gave the following history: He has always had an itchy skin during the winter. Ten years ago an eruption appeared on the hands during the first part of the winter, which gradually extended to the wrists. It disappeared the following spring. The following three or four winters he was likewise troubled, although he does not remember as to further particulars. Six years ago the eruption appeared early in the winter on the left ankle, where it has remained ever since, although much better during the warm weather. This spot is hypertrophied, bluish in color, giving to it a varicose appearance, and is very itchy. It resembles somewhat a large plaque of lichen planus. At the present time the eruption shows a slight tendency to extend to other parts, as the face, legs and arms, although in these latter positions it presents the appearance of a mild eczema. There is in this case an evident predisposition to eczema which somewhat obscures the well-defined clinical picture of the winter eruption.

CASE 16.—F. F. H., male, aged 53, was first seen Dec. 23, 1894. There was present an eruption on the back of the hands, very itchy, which was paroxysmal and most noticeable before a change of weather and at night. The lesions consisted of one twenty-five-cent-sized spot near the base of the thumb of the right hand; on the left hand a small dime-sized spot had appeared a few days before. The eruption was exudative. The present attack began about ten days ago, during the first outburst of cold weather. The patient states that a similar attack occurred the winter before and remained until warm weather, when it disappeared. The patient was directed to protect the hands from cold by wearing thick gloves lined with leather, and an application of salicylic acid gr. vi and diachylon ointment ℥ij was ordered. The disease, although not eradicated during the winter, was somewhat modified by the treatment and the following spring disappeared spontaneously.

CASE 17.—M. B., female, aged 6, was first seen April 16, 1895. There were present quarter-dollar-sized oval patches on the left hand at the base of the thumb. The skin involved in the lesion was thickened and fissured, of a dark red or purplish color, and very itchy. On the right hand there were smaller groups of pinhead-sized vesicles, some of which had ruptured on the back and sides of the fingers. These presented somewhat the appearance of herpetic lesions, although they were scattered promiscuously, and apparently had no connection with nerve trunks. On the back of the right hand there were three irregular, roundish, dime-sized lesions of reddish color, and slightly covered with scales. Scattered over the back of

† This is a provisional name.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. W. T. Corlett, L. Duncan Bulkley and W. L. Baum.

the hands and extending to the forearms were several papules interspersed with scaly patches. The disease appeared for the first time March 16, and had accordingly existed only one month. The patient did not recall any previous eruption. The general health was good and no systemic cause could be assigned. The disease disappeared on the approach of warm weather a few weeks later. As the family moved away from Cleveland nothing further has been heard of the case.

CASE 18.—L. J., female, aged 32, seen April 29, 1895, presented a thick, fissured patch on the back of the left hand, which was well defined, slightly exudative and covered with thick crusts. The patient is right-handed. The margin of the lesion was slightly elevated and stood out in bold relief. There was a dark red or purplish tint especially noticeable when the hands were dependent or cold. The history of the disease as given by the patient is as follows: Nine years ago, during the winter, the eruption first appeared on the left hand. It disappeared at the approach of warm weather, and reappeared each successive winter, its advent, as nearly as the patient can remember, being co-existent with that of frost. Within a year or two of the first invasion the right hand became affected in like manner. Of later years this lesion has disappeared completely, while the patch originally invaded

Fig. 1.—Dermatitis hiemalis, acute attack, the disease having existed for several years.

on the left hand has continued to return in the same site each winter.

CASE 19.—L. D., female, age 16, first presented herself April 14, 1895. The patient was employed in a candy factory and handled colored powders. The eruption was situated on the back of the hands and on the fingers. The family history shows nothing of importance bearing on the disease. She gave the following history of the eruption: From the age of one to six years she had eczema, with pus oozing from fissures about the joints and on different parts of the body. After the age of six there was no disturbance of the skin until 1895, when at the approach of cold weather in January the present disease appeared. There was first noticed a roughness about the mouth, the skin became dry and was easily irritated, and this soon appeared on the dorsal surface of the middle finger of the left hand (the patient was right-handed). From this region it spread by the formation of similar roundish spots, quarter dollar in size, which gradually enlarged at the periphery until they attained the size of a silver half dollar. They were dark red in color, at times very itchy, worse at night, and especially when in bed. There were, at the time of examination, six spots on the back of the left hand. The palms were free. About two months ago it also came on the dorsal surface of the right hand. These were smaller, being dime-sized and six in number. The skin of the neck is also rough and slightly red, similar to that about the mouth. The patient has never had chilblains nor does she habitually complain of cold hands or feet. In making a diagnosis the following note was appended: "Dermatitis hiemalis, occurring in a skin predisposed to eczema. Just how much influence her occupation has on its causation is difficult to say. The present attack appeared during unusually cold weather."

CASE 20.—J. H. A., male, aged 3, seen Nov. 7, 1895. Sought relief for a disease of the skin of eighteen months' duration. It appears only on the exposed parts of the body, is of red color and feels rough. It was first noticed during cold weather, and the mother has noticed that it is always aggravated by cold. During the summer months it almost completely dis-

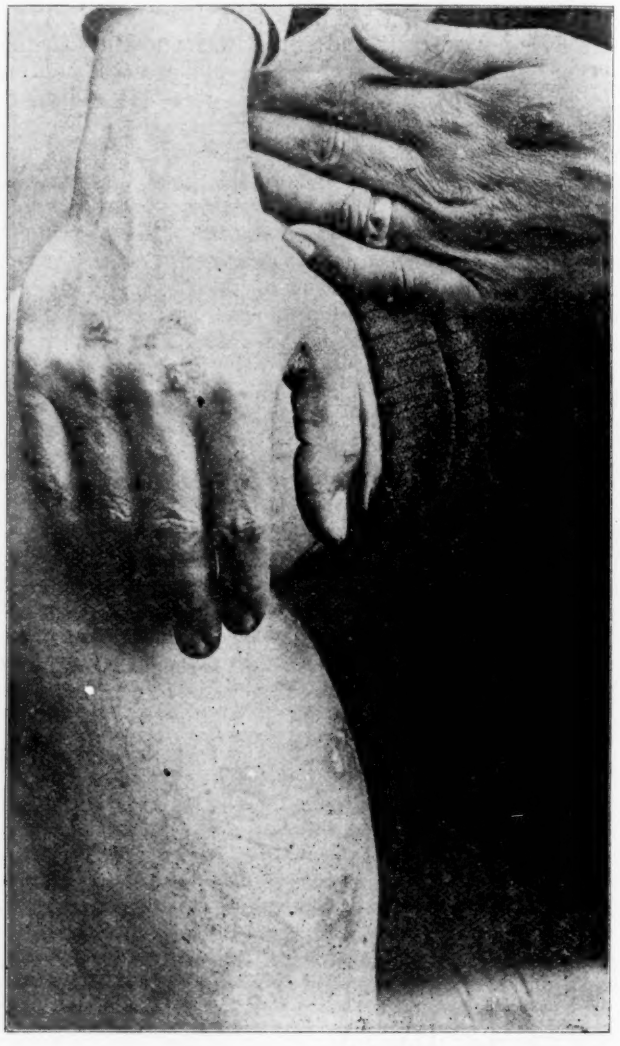

Fig. 2.—Dermatitis hiemalis occurring on the hands and legs, very rare occurrence.

appears. The patient was under treatment during the whole winter. My next note was on Feb. 15, 1898, the area involved being somewhat rough and inclined to fissure.

CASE 21.—G. E. C., male, aged 42, presented himself May 5, 1896. Patient complained of well-defined lesions which occurred on the back of the hands every winter and disappeared during the warm weather of summer. They always returned in the same positions, always occupying the same sites. There was nothing in the case calling for special description.

CASE 22.—L. P., female, aged 34, seen March 27, 1896. The disease came first in February, 1892, and has since returned each March and has always disappeared early the following summer. This year it appeared during the cold weather which occurred during the first part of the month. It is limited to

the back of the hands, and occurs in circumscribed spots. It has extended up the forearms to a slight extent. A piece of skin was removed for microscopic study. As a child the patient was troubled with chilblains and had eczema of the face. My notes show that on April 3 the hands were better. This date followed a spell of warm weather which had prevailed for a week or more. Then there came a heavy snow storm with northwest winds, and the patient immediately became worse with chills and cutis anserina.

CASE 23.—W. T., aged 35, was seen April 17, 1899. The disease first appeared four years ago, in the form, according to the patient's statement, of a "dry blister," or a "small vesicle," not itchy, and later accompanied by "small blisters leaving crusts" in patches about the size of a dime. The following winter it broke out again and was very itchy, accompanied with much watery exudation. It has, the patient says, returned every winter since, and usually leaves during the summer. If present at all during the warm weather, it is only to a slight extent, and is then attributable to some slight irritation. On the back of the left hand (the patient being right-handed), there were two or three lesions about the size of a silver dollar. They were irregular in outline with prominent margins; some were fissured and dry, while the majority were moist, and in all slight itching was complained of. They had never appeared on the right hand nor on any other part of the body. During the spring of 1901 the patient returned for treatment; the hands were in a very bad condition, although not changed in character. The patient says last spring they gave but little trouble.

CASE 24.—E. H. P., female, aged 40. Under date of April 26, 1899, occurs the following note: "Disease occurred on the back of hands. First came in February of this year on the back of one hand. The lesion gradually extended and new spots are now appearing on the opposite hand. Patient complains of burning and itching. It looks like ringworm, has a prominent margin with a dry, scaly central area. General health good."

CASE 25.—J. E. T., male, age 26, dry-goods clerk, sought advice Nov. 1, 1900. He gave the following history: The disease first appeared three years ago, coming at the first approach of cold weather. The right hand was the most seriously affected, consisting of circumscribed patches, appearing in size from a dime to a half dollar. They were very itchy and always disappeared in summer.

CASE 26.—C. M., female, aged 25, servant, first seen Oct. 29, 1901. She presented a typical picture of the affection herein described (Fig. 1). The patient came to Cleveland from Ireland five years ago. In January of the following winter the present disease began. It appeared on the back of both hands. It remained during the winter and at the approach of warm weather became better, although the patient noticed a slight irritation on the back of the hands during the summer, so much so that she did not think she was entirely free from the eruption. The following winter it became aggravated, and during the present year it has appeared again with unwonted severity. There were, at the time of her first visit, reddish ringed lesions which tended to heal in the center while the margin was elevated and presented a more active inflammation. The patient complained of burning and itching. The left hand was worse than the right (the patient is right-handed). On the left hand there were two lesions, the size of a twenty-five-cent piece, of a brick-dust color, somewhat ring-shaped, which looked like ringworm. The eruption was moist, especially after rubbing. In the center some lesions were slightly scaly. Bits of skin were excised for histologic examination.

REPORTS OF MICROSCOPIC EXAMINATIONS OF SKIN.

The following histologic report of Cases 21 and 22 has been kindly furnished me by Dr. Thos. E. Ely of New York:

CASE 21.—The first specimen consists of several small fragments which show on microscopic examination the following changes:—

1. In places where the lesion appears to be slight the only notable change is in an accumulation of small spheroidal and epithelial cells in the corium about the blood vessels. This change is most pronounced just below the papillary layer in the earliest stages, but soon apparently affects the vessels of the papillæ also. When the papillary layer is affected there is also evidence of edematous infiltration of the tissues surrounding the affected blood vessels, both those of the papillæ and of the deeper portions of the corium, this change being most marked, however, in the papillæ, as a rule. These are the only changes observed in some of the specimens.

2. In others, however, further changes are apparent. In these the changes noted above are present, usually in considerable intensity, the edema sometimes being very marked, but in addition there are changes in the epidermis. Of these the most marked, and probably the initial change, is in the horny layer, and consists of swelling of the cells just external to the lamina granulosa, as if these cells had become infiltrated with a liquid. In consequence of this swelling the horny layer is

Fig. 3.—Typical case of dermatitis hiemalis, second yearly attack.

at first merely thickened, but even in apparently early stages of this infiltration a tendency to the formation of vesicles is shown by the occurrence here and there of a few small spaces of spheroidal shape and filled with granular material representing serum albumin precipitated in the course of fixation of the specimens.

3. In this stage also there begins to be noticeable a change which later becomes very pronounced, viz., a separation of the cells of the rete Malpighi, so that distinct intercommunicating channels appear between the adjacent cells. This change is seen first in the middle region of the rete where prickle cells are abundant, but extends from there in the more severe cases to the entire thickness of the rete. These channels are believed to have resulted from dilatation of the intercellular spaces. At times they have a width equal to about one-fifth the diameter of the epithelial cells adjacent to them, which under these circumstances seem to have undergone a change in the direction of their long axis. It will be remembered that in the normal skin the cells of the rete become progressively

flattened and consequently elongated in the plane of the skin as they approach the surface. This natural change is observed to be less marked or wholly absent in those parts of the specimens where the intercellular spaces are considerably dilated, and occasionally the cells present their longer diameter even perpendicular to the surface of the skin. The intercellular spaces are for the most part devoid of cellular contents, but even in places where the dilatation is not greatest there are not infrequently a few infiltrating small spheroidal cells to be seen in them. These cells when isolated are for the most part mononuclear, have a small cell body, are very irregular in shape and stain deeply, from which characters they are believed to be mononuclear leucocytes wandering from the deeper layers to the surface.

4. In addition to the change in shape of the cells of the rete above referred to, it is also noticed that the bodies of many of them appear distinctly more granular than normal, and that even in the deeper layers small vacuoles have formed circumferentially about the nuclei. In those places where the changes are all more marked these vacuoles are seen to be much larger, occupying as much as a quarter or half the cell body. They appear in the specimens to be empty, but probably during life had a liquid contents. Occasionally the cell

Fig. 4.—Dermatitis hiemalis, the typical eruption, showing the herpetiform character of some of the lesions. They are usually encountered early in the course of the disease.

appears swollen and its entire contents appear to have given place to one large vacuole.

The changes above detailed represent the fundamental pathologic processes which have been observed, but they are combined in different proportions in different parts of the specimens. They have been presented, so far as possible, in the order in which they are believed to have occurred, and if this be correct, represent the various stages of the process. In those places where the accumulation of liquid is considerable, where the degeneration of the epithelial cells is marked and where their separation is wide, distinct vesicles are formed, often covered by a considerable layer of the epidermis. In some instances the contents of these vesicles seem to have been chiefly liquid, but in not a few occasional leucocytes, now polynuclear for the most part, are visible. The vesicles are formed in some instances in the horny layer and again in the more superficial layers of the rete, so that they can not be said to have any definite localization. In a few places the vesicles appear to have broken, discharging their contents and becoming covered by a crust of dried material.

Summary.—The changes observed in these specimens are those of an inflammatory process characterized chiefly by infiltration of the skin by a liquid exudate. In addition, however, there is moderate emigration of leucocytes and some growth of connective tissue cells (epithelial cells) about the blood vessels of the corium. As a part of the inflammatory process also there is degeneration and vacuolation of the epithelial cells of the epidermis, this combining with the liquid infiltration to bring about the formation of vesicles.

CASE 22.—The second specimen is a larger piece of skin, with some of the subcutaneous fat, etc., attached. The changes observed in it are in all essentials the same as those described as present in the specimens from the first case, although some of them are more marked in this specimen while others are less.

1. The same accumulation of cells about the blood vessels of the corium, both of the papillary portion and of the deeper parts, is observable. The edematous condition noted in the first specimens is also present, though less marked in this instance.

2. The swelling of the epithelial cells of the horny layer of the epidermis is exceedingly great in this second specimen, and there are frequent large vesicles here. The contents of these vesicles appear to have been serum for the most part, though a few polynuclear leucocytes are also present in most of

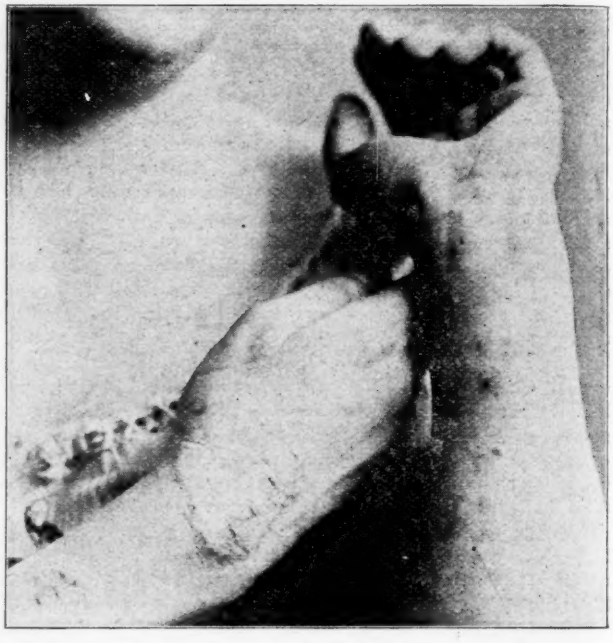

Fig. 5.—Dermatitis hiemalis, showing the appearance of the lesions after many years' duration, thickening of the derma well marked, itching severe.

them, not enough, however, to indicate the presence of "pus." In this specimen it would seem that there had been little if any excoriation of the superficial epithelium, and this suggests that it represents an early stage of the disease.

3. The separation of the cells of the rete Malpighi described in connection with the first specimen is here much less prominent, though discernible in many places. Here, also, an occasional leucocyte may be seen in the dilated channels.

4. The granular and hydropic degeneration of the cells of the rete are also less prominent in this case.

Summary.—It will be evident, then, that there is much similarity in the changes observed in the two cases, but that in the second the swelling of the horny layer is the most pronounced feature, while the edema of the corium and of the rete Malpighi is here less marked. The conclusions adduced from the study of the first case consequently apply to this second case also. The impression gained from the study of the second case is that it represents an earlier stage of the disease.

During the past winter Dr. Edwin Perkins Carter has studied bits of skin taken from Cases 22 and 27. In both instances the character of the skin lesion was typical of the so-called eczema hiemalis as described above; and the histologic examination was made with

a view to determining what, if any, peculiar or characteristic pathologic changes were present. Dr. Carter reports as follows:

CASE 22.—The tissue was secured about the sixth day after the first appearance of any skin lesion, and the changes present were as follows:

The stratum corneum shows everywhere the evidence of excessive exudation, while three large vesicles stand out prominently with but an extremely thin epidermal covering. Under high power the free masses of red blood corpuscles caught on the surface and in the edematous meshes of this layer, testify to the occurrence of real, and to a certain extent of accidental hemorrhage. Here and there a few scattered leucocytes are to be seen. These vesicles are filled with a clear serum and desquamated cells, and contain almost no polymorphonuclear leucocytes. Where they have formed the upper layers of the rete Malpighi have given place to them, with the usual resulting thinning of the rete in these areas. Elsewhere the rete Malpighi shows some slight increase in thickness, and in several areas, as one approaches the corium, there is quite marked evidence of a mild inflammatory reaction, as illustrated by the infiltration of polymorphonuclear leucocytes and the amount of edema present. In many cases the cells in the stratum granulosum are swollen and edematous, taking the stain but poorly, while in others again they remain unaltered. In the reticular layer of the corium, in addition to some slight vascular dilatation, there are here and there scattered foci of polymorphonuclear leucocytic infiltration and edema. Nowhere is there any small round cell infiltration.

Fig. 6.—Dermatitis hiemalis, first attack, showing more acute form of inflammation with vesicles, and the distinct elevated margin described in the text.

CASE 27.—In this case the tissue was secured at an even earlier stage of the disease, and the changes present are of so slight a character as to hardly merit a description. The upper layer of the derma showed no alteration, and the only evidence of any pathologic change was to be found in the slight vascular dilatation present, and in the edema of the upper layers of the rete Malpighi.

Summary.—From the observations made on these two cases there is no evidence that the process differs in any way histologically from an ordinary eczema. The stage of the changes depending, as in any case, on the length of time during which the process has been active, together with the susceptibility of the individual skin affected.

THE AUTHOR'S CONCLUSIONS.

From a careful clinical study I am convinced that the affection is more closely allied to the erythemata than was at first supposed. Not only is the color suggestive of some forms of erythema, being of a dark bluish tint, but like erythema, it more frequently attacks the distal extremities or parts farthest removed from the center of circulation. Again, like the erythematous group, it is more frequently met in the months in which there is the greatest variability in temperature, which prevails most frequently during the early winter and the early spring months. The histologic findings made by Dr. Ely and by Dr. Carter show nothing distinctive, and the extent of changes in the skin seems to be wholly dependent on the amount of circulatory disturbance. That cold may be regarded as a causative factor in the affection seems to me to be well established; that the same influences are causative in the erythematous group is likewise generally accepted. I would therefore regard the disease as one allied to eczema, while characterized by some of the clinical features of erythema, presenting a clinical picture quite distinct, which further observation may show is entitled to be looked on as a disease *sui generis*.

Fig. 7.—Dermatitis hiemalis of many years' duration, inflammation less active, hypertrophy beginning to take place.

Should a distinct name be called for, the most appropriate, it seems to the writer, is the one proposed, dermatitis hiemalis.

TREATMENT.

Little can be said in regard to the treatment of the affection. Thus far the internal administration of ichthyol, as reported in one of my previous communications, apparently was of benefit in one case—the disease having disappeared under its use without the assistance of warm weather. The most benefit, however, has been derived from local measures. The application to be selected naturally depends on the extent of the inflammation, and whether or not we have an excoriated area or a thick and hypertrophied condition of the skin to contend with. In the former condition some slightly astringent, soothing application, such as the glycerid of tannin, diluted with distilled hamamelis (1 to 3), lead wash, or the evaporating lotion of Hutchinson (liquor

plumbi ℥ii, spts. rectificati ℥iii to aquæ q. s. ad ℥viii). When the disease has become chronic with hypertrophy, salicylic acid grs. xx, ung. diachyli ℥ii. In place of the diachylon ointment, mercury or tar may be used in ointment form. In all cases the hands should be protected by wearing leather gloves, and when practicable a change of climate affords the most certain means of immediate relief, although it does not eradicate the tendency to the disease.

DISCUSSION.

DR. W. S. GOTTHEIL, New York—The cases described belong to a class not unknown in the east, though we are accustomed to give them a different name, and do not recognize the relationship to erythema that the essayist ascribes to them. Precisely similar cases in our clinics are called mycotic eczemas; they are recognized as eczematous, and are called mycotic on account of their peculiar margins, course, etc. That they get worse in late autumn and early spring has also been noted.

DR. M. L. HEIDINGSFELD, Cincinnati—I have long been impressed with the frequency with which these cases occur, and with the large rôle they play in dermatologic practice in Cincinnati. I am also impressed with what Dr. Gottheil remarks on, and the clinical manifestations have lead me also to believe that there is some parasitic nature to this affection, though histologic and bacteriologic proof is still lacking. The same predisposing influences which Dr. Corlett mentions exist in Cincinnati. Personally speaking, these cases, in previous years, have proved to be very obstinate and rebellious to therapeutic measures, and during the past year I have found the *x*-rays to be a very valuable and efficient measure for their treatment. As far as my personal experience permits me to state, I believe that the results from the *x*-ray are not only prompt, convenient and effective in the treatment of this affection, but also permanent.

DR. M. B. HARTZELL, Philadelphia—I think we have all seen cases of this kind, and it seems to me that what they should be called depends largely on their etiology. I am sure I have seen cases like these which have resulted from external irritants. In some instances the irritant was discoverable, but in most it was unknown. If I understood the writer of the paper correctly, the histology differed from that of eczema. As to whether we shall call this affection dermatitis hiemalis or eczema will depend somewhat on our definitions of dermatitis and eczema. I would deprecate qualifying the disease as mycotic. That seems utterly without reason. No one has ever discovered a micro-organism in these cases, and the presence of a sharp margin is not a sufficient reason for calling them mycotic.

DR. F. H. MONTGOMERY, Chicago—Dr. Corlett has given a very clear demonstration of a fairly distinct local type of a larger class of disorders to which Dr. Hyde called attention some fifteen years ago. By comparing, month by month during a period of three years, the number of cases treated with the temperature chart of the weather bureau, he demonstrated that these conditions were exaggerated and largely due, not so much to cold as to sudden temperature changes; a sudden change from cold to warm weather being effective, though less so than an equally sudden change in the opposite direction. I would like to ask Dr. Corlett whether he has recognized this influence of a sudden change in temperature on the cases which he has described to us.

DR. CORLETT—I am loath even to attempt to add to the already long list of skin diseases, but I have a fixed impression that the cases herein detailed represent a distinct clinical entity, while from a pathologic standpoint no distinct picture may be drawn. As I have said, my observations are based on clinical experience.

In regard to Dr. Montgomery's question, in my paper read in London I gave a table of the climatal changes occurring on the south shore of Lake Erie for a certain period of time, and in that table I called attention to the fact that these dermatoses were apparently dependent on a rapid change in temperature, but that my observations were always on the same altitude.

CONCERNING MORPHIN ADDICTION AND ITS TREATMENT.*

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Of the last twenty cases of morphin addiction which have come under my observation, eight were physicians, one was the wife of a physician and one the daughter of a physician. Fifty per cent., therefore, occurred among physicians and their families. It is difficult to account for this appalling fact. I have fallen to wondering how much the disposition to test and try had to do with this and how far failure on the part of teachers to emphasize to students the dangers of the morphin habit was responsible for it. In some instances I am regretfully forced to the conclusion that the taking of the narcotic was from pure self-indulgence. In one case in particular, that of a young man who acquired the habit in student days, there was no attempt at self-extenuation or excuses. He did not even justify its first use on the ground of experimentation as to its effects, but admitted dallying with it and forming the habit as one might that of tobacco. His mental organization was cast in the dreamy mold, and I am not at all sure but that previous indulgence in cigarettes to excess had much to do with the subsequent resort to the, to him, more delightful stimulation. In the majority of the eight cases, however, I think it unquestionable that the habit had been acquired because of demand on the part of the system for temporary lifting up after exacting professional duties. No doubt in most of such cases the physician to secure repose and rest from the boneache and nerverack has taken a small hypodermic with a feeling of perfect indifference as to danger. He has been perfectly well aware of the insidiousness of the drug and the danger of the formation of the habit, but has, because of this very assurance, felt there was no likelihood of its obtaining the mastery. It would seem, however, in the light of these facts, that a grave responsibility rests on teachers of therapeutics to instill into the minds of students a wholesome fear of this blasting and deadly narcotic. It is my belief, based on the experience of a good many years, during which I have had many painful neuralgic conditions to treat, that it is used far more than there is any need. It is too frequently the first resort. The physician is apt to follow one dose with another, and another, and when he finds to his distress that his patient is clamorous for the drug and will not hear of its suspension, he realizes, perhaps for the first time, the perils of the situation.

Paradoxical as it may appear, some of the most difficult cases to treat have been those of short duration, and the least difficult those displaying a complication of habits, as liquor and morphin, or cocain and morphin. The latter have frequently borne the abrupt withdrawal or the rapid reduction of the drug with less constitutional disturbance than cases of the morphin habit pure and simple. I have never known a case attended with greater discomfort than that of a young man under twenty-five who had used morphin but three years, and who was taking, as far as could be learned, not more than three or four grains per diem. In this case the nausea and vomiting, cardiac disturbance, pain and nervous manifestations were extreme, and would have been alarming except for the age and strength of the

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Frederick Peterson, Richard Dewey and H. A. Tomlinson.

patient. Circumstances were such that the abrupt withdrawal of the drug was imperatively necessary. Whether the symptoms would have been materially modified had some other method of treatment been resorted to, I am in doubt.

On the other hand, the case which presented fewest difficulties in the way of treatment was that of a physician, aged forty-eight, who had used liquor and morphin for thirty years, beginning the employment of morphin for sick headache. Both had been taken in great excess for seven years. He had had one attack of delirium tremens, followed by mental disturbance, which continued for two months. He once reformed under the gold cure, but relapsed. Within the twenty-four hours previous to his admission to Oak Grove he had consumed three pints of whiskey. He took regularly every two hours or thereabouts in the twenty-four hours the following drugs in pill form: Acetanilid, 3 gr.; citrate of caffein, 2 gr.; bicarbonate of soda, 1 gr.; morphin, 3-8 gr.; nitroglycerin, 1-100 gr.; tincture digitalis, 2 drops; tincture strophanthus, 2 drops; strychnin 1-30 gr.

Immediately after admission to Oak Grove he was given a Russian bath and his clothing and effects were carefully examined, a few tablets of morphin being removed. During the evening he complained of acidity of the stomach, which was relieved by the administration of aromatic spirits of ammonium, quinin and sodium bicarbonate. Compound syrup of hypophosphites was prescribed, t. i. d. At bedtime 15 grs. of sulphonal were administered. He passed a comfortable night, sleeping well, remained in bed all the day following admission, dropping asleep before dinner time and sleeping soundly until midafternoon. On waking, the heart's action was sixty-four, but soon rose to seventy-two. He was depressed in spirits, but showed no physical perturbation. Two days later he sat up. It was noted that he felt comfortable. "He complains of no unpleasant symptoms except slight headache and weakness." Three days later the note is made that "his appetite is very much improved and he is gaining in strength. He walks about the grounds and goes driving," and one week later that, "he continues to gain in strength and mental operations are clearer." It is a singular fact also that there is an entry to the effect that constipation has been overcome by the use of cascara and glycerin suppositories. As all will agree, constipation as a symptom following the withdrawal of morphin is most unusual. He was removed from Oak Grove two months following admission.

The experience in this case and in a similar case where the patient had been taking morphin, whiskey and cocain (the withdrawal of all three of which was productive of no constitutional disturbance) would seem to indicate that as a preparation for a course of treatment looking to the withdrawal of morphin, it might be well to prescribe for a period of weeks or months a small allowance of whiskey and cardiac tonics, such as digitalis and strychnin.

As a rule, patients who place themselves voluntarily in the care of a hospital for relief from a drug habit, are deeply imbued with the necessity for this and are desirous, for financial or other reasons, that the habit should be corrected at the earliest possible moment. In such cases where physical strength will permit and one has the full co-operation of the patient and can watch the case for untoward symptoms, it is frequently expedient to discontinue absolutely and at once, opium and all its preparations, substituting strychnin, quinin, kola, coca, champagne, aromatic spirits of ammonium, according to circumstances and giving hypnotics at night as indicated. In prescribing chloral in such cases, it is well to combine it with quinin or strychnin, and I find that at the height of constitutional disturbance and physical distress the third day after the withdrawal of morphin, a hypodermic of a quarter to a half a grain rests the system, brings about relief from nervous tension and does not interfere with the progress of the case; in other words, treatment may go on as before after the use of the hypodermic.

An interesting case came under observation not long ago, in which the patient had been using the following drugs: Sulphate of strychnia, 1-60 gr. every 4 hours: for a stomach and bowel difficulty, salol and charcoal of each 1½ gr., subnitrate of bismuth, 6 grs., extract of nux vomica, ¼ gr.: for inaction of the kidneys acetate of potash, 12 grs., spirits of nitrous ether, 10 minims, every hour until four doses had been given; of morphin, 26 grs. in 24 hours in divided doses; of paraldehyd, a small teaspoonful every hour. She was also requiring the use of a spray and mouth wash in consequence of salivation from paraldehyd.

In this case paraldehyd was discontinued immediately, the other prescriptions given at longer intervals until discontinued and the morphin rapidly reduced. It was practicable after three weeks to discontinue the use of morphin altogether.

Much has been said and written about the greater fortitude of women than men in bearing suffering, and my experience with morphin habitués bears this out. The most heroic patient I have ever known was a woman who had been taking in the neighborhood of fifteen grains of morphin daily for a number of years. She insisted upon having the drug immediately and totally withdrawn and her wish was complied with. I am satisfied that her sufferings were acute, but she bore them with a stoicism and a restraint of the emotions deserving of all praise. Hardly a groan escaped her. She set her lips and teeth and never gave way to lamentation or outcry. I have often thought that for cool, clear grit this case shone out with unparalleled brilliancy. Her sufferings were over in a week and she recovered rapidly, as she deserved to.

Two cases came to Oak Grove of one of whom it was alleged that there had been used large quantities of liquor and cocain and of the other, cocain and morphin. In the latter case the allegation was admitted as to the past, but it was declared by the patient that he had recently discontinued both. In the former case the use of whiskey was admitted, but that of cocain denied. In neither was anything of a spirituous or narcotic character prescribed after admission and the practical absence of constitutional symptoms seemed to bear out in a measure the contention of the patient. I had a suspicion, however, in at least one of the cases, that extreme strength of will and the determination of the patient to maintain his position against that of those who had been instrumental in placing him under treatment buoyed him up and operated as a strong auto-suggestion to modify the symptoms of constitutional disturbance.

One case was that of a woman of advanced age, 73 years, and was complicated by feeble heart. Notwithstanding the latter condition, rapid reduction of morphin was resorted to and in the end complete recovery occurred, although at one time there were alarming cardiac symptoms. Experience in this case confirms me in the belief that the dangers from abrupt or rapid withdrawal of morphin are somewhat exaggerated. Personally, I have never known fatal results to follow the with-

drawal of morphin except in one case. The case was encountered many years ago while I was connected with the asylum at Pontiac. The patient was a young man in apparently vigorous health who had become so thoroughly disgusted with the slavery to appetite that he determined to be released from bondage at once. He was so fearful that morphin even in small amounts would be given him concealed in other medicines, that he absolutely refused to take medicine of any kind. Three or four days after the withdrawal of the drug, he got up from bed against the advice of the physician and insisted upon being shaved. He complained of feeling ill when in the barber's chair and returned to bed, where he was found a few minutes later, dead. There is no reason to doubt that had this patient taken suitable sustaining remedies and received the nursing attention which was desirable, he would have escaped the sudden heart failure which caused death.

As may be inferred from the foregoing, there is no plan of treatment that I permit to dominate me or tie my hands in any case. As a rule, I prefer the abrupt withdrawal or rapid reduction of the drug for various reasons, chief among which are that by dispensing with it as early as possible, the amount of suffering is limited, and that it is an injustice to the patient to stretch over a period of months something which may be accomplished in as many weeks. I would not, however, minimize the importance of keeping the patient under disciplinary control and observation as long as may be necessary, during which period the nervous system should be built up, and fortified against subsequent temptation, by the use of tonics, calisthenics, good food and diversion.

DISCUSSION.

DR. D. R. BROWER, Chicago—I congratulate the Doctor on his excellent paper and am sorry to have to add my testimony among our profession and their families. I have had a good many just such experiences as he has had. Of course, I know Dr. Burr well enough to know that his judgment is most excellent in his remedial measures and I agree with him that in properly discriminated cases the sudden withdrawal is the best method to pursue, but so far as my clientage is concerned I find very few cases in which I think this can be done. In my early experience with morphin habitués I had several cases of insanity following the rapid withdrawal of the drug. Since then I have been extremely cautious about it. I agree with Dr. Burr as to the rapid but not the immediate withdrawal of the drug. In more recent years I have never had a case in which I thought the immediate withdrawal could be done with any advantage, excepting in the case of a physician's wife, and even then I did not advise it. She did it on her own responsibility. From taking a very large quantity of morphin daily she came to the conclusion that she would stop at once, and stop she did, exhibiting that wonderful heroism already described. Of course, we kept her well sustained with strychnia and other tonics. My personal experience in recent years has been against the immediate withdrawal.

DR. H. A. TOMLINSON, St. Peter, Minn.—I am always reminded, when I listen to the discussion of this subject, of the controversies which accompany the discussion of the treatment of typhoid fever and pneumonia. Plans of treatment, apparently diametrically opposed, are vigorously advocated, and each seems to be successful. So it is with the treatment and management of the victim of the abuse of narcotics. I do not wish to be dogmatic, and am willing to admit that there is no fault to be found with the logic of those who advocate the gradual withdrawal of the drug, in cases of morphin or cocain habituation, but I am doubtful as to the soundness of their premises. It has always seemed to me that the difference was the same as that between poulticing and lancing a boil. Both methods will successfully evacuate the abscess, and the incision by the knife certainly hurts most at the time. Personally, I have never seen a case of drug habituation where I have not been able to stop the use of the drug immediately; and while there has been sometimes a great deal of depression, and even apparent collapse, yet the result showed that no harm had been done, and the more rapid recovery of the patient proved that the method was the best. It is true that I have always had my cases absolutely under my control; and I have relied largely on hydrotherapeutic measures and active and persistent feeding. I have withdrawn the drug immediately in a case where 60 grains of morphia, 60 grains of cocain and one quart of whisky were taken every 24 hours, without the slightest ill-effect; although there was acute mental suffering during the first 48 hours. While the patient complained bitterly at first, he afterward admitted that the course followed was the best. I have recently had under my care a physician who came to me an absolute wreck physically and insane. He had been taking morphia and alcohol certainly, and other narcotics probably, in increasing doses since 1892; and had frequently been the subject of so-called cures. He was told frankly what method would be pursued, and while he demurred at first, he submitted. This case was, in my experience, phenomenal, because the patient had very little discomfort, slept well after the first night without hypnotics, ate heartily, and within a week was as well as these cases usually are at the end of a month. I would like to call attention to a fact in my experience, in the treatment of these cases. Those people who take both alcohol and morphia seem to recover more rapidly than those who take morphia alone; and not only are the immediate results better, but the permanent recovery seems to be more certain. It is possible that there is some antagonism between these narcotics, or else that in taking both the victim takes less of either one. There is another fact in my experience which I have not heard referred to. In those who have been morphia, and particularly morphia and cocain habitués for more than a year, there seems to be a permanent loss of the capacity to tell the truth; a sort of moral reduction which remains after apparently complete recovery. He seems to become a gratuitous and usually a purposeless liar. I do not know what has been the experience of others in this respect, and it may be that it has been so in my experience because those cases coming under my care have, as a rule, also been insane, at least temporarily. I do not mean to affirm that there are no exceptions to this rule, but only that I have not met them.

DR. J. H. MCBRIDE, Los Angeles, Cal.—The problem of the morphin habitués is not more to stop his taking the drug than to keep him from returning to the use of it. There are certain aphorisms which it is well to observe in curing the patients of the habit. They should never know how much of the medicine the physician is giving them nor when a reduction is made, nor when the last dose is taken. They are morbid and suspicious and if they know what is being done are certain to criticise and make trouble. The morphin taker is a moral cripple because of the habit and I think it leaves a scar from which they rarely recover. The proper place to treat these people is in institutions and it would be better if they could be kept under surveillance for a year until the nervous system regained its normal tone. I have little faith in the permanency of the cure of the morphin habit. In the many years I have dealt with them I have had charge of a large number and I think I could count the permanent cures on my fingers, possibly on my thumbs. They go away apparently cured; but if they have care and hard work, this, with their weakened will power, leads them to return to the habit and so it comes about that their last state is worse than the first.

DR. JOSEPH COLLINS, New York City—I do not know that I quite understand what the reader of the paper means by the sudden withdrawal of morphin, but if he means the withdrawal of it on the day that he begins the treatment of the patient, as I presume he possibly does, I would state that my endeavors to do that have been singularly unfortunate. If he means by the sudden withdrawal of morphin what I mean when I say that the drug should be withdrawn within

the first week or ten days, then that is the plan to which I hold allegiance and the plan which, with few exceptions, I have never had reason to regret. It seems to me that in all the cases, except those in which the morphin habit has been acquired to overcome the asthmatic neurosis, that the drug can be stopped within the first ten days or first fortnight. Dr. Tomlinson says that he has never seen a case in which the drug could not be stopped suddenly. I must infer that he has never had a case in which the habit was acquired through morphin given to control asthma. It is certain that if a man gets a profound asthmatic paroxysm, you are going to give him some morphin at the time, or he is going to die; at least, that has been my experience. I have no difficulty in the treatment of any case of morphin addiction in cutting down the drug to one-half grain per diem, although the patient may have been taking from ten to one hundred and twenty grains per diem before coming under treatment. In some cases this results in suppression of the solid matter in the urine, associated with a condition of the colon, such as membranous colitis, in which, if some morphin is not given for a week or ten days following, the patients do not get well. The only factor in the treatment of the collapse, which occurs at the end of the first week or thereabouts, the time when the morphin is withdrawn completely, which is not spoken of sufficiently in the books and in articles treating of this subject, is the use of the very hot bath. I recall a case that was under treatment two years ago. The morphin had been withdrawn rapidly and the patient had passed into a condition of collapse. It appeared that death was imminent. He was put in a tub of water at a temperature of 120 F. for a few minutes, probably one or two minutes. The results were more striking than from any other stimulant that I have seen. A few repetitions were sufficient to tide him over the condition of collapse. I would be wretchedly unhappy if I believed for a moment that Dr. Tomlinson's conviction regarding the veracity of the cured morphin habitué was general. Morphin habitués, when they really recover, are just as capable of telling the truth as I am or as any other person made in the same model or cast in the image of God. I believe that this idea that the moral sense of morphin habitués is completely perturbed is an absurdity that has been handed down from generation to generation. Some of the best citizens in New York, some of the most brilliant minds in our profession, some of the masterpieces of evolution's handiwork, have recovered from the morphin habit, and they are just as good citizens and just as good pillars of society as those who have never taken morphin. I am very much interested to hear gentlemen connected with institutions talk about the morphin habit. I was particularly interested in reading Dr. Crothers' book, in which he says that patients should be treated in such institutions. But how are we to get them into institutions? You know, Mr. Chairman, and I know, that in our state we can not do any such thing. We can treat a morphin habitué when he comes to us, the same as we can treat a typhoid fever patient when he comes to us. We have no more right to deprive a man of his liberty because he takes morphin or takes cocain than we have to shut him up because he chews tobacco. I agree with the reader of the paper and with Dr. Tomlinson that the institutions are the best places to treat these patients, but the first thing to do is to get your bird in a cage before you count his feathers. As far as keeping them in an institution is concerned, I think that is a splendid idea, if it could be enforced, which, unfortunately, it can not. We keep them in institutions—if we have been able to persuade them to go—just as long as they want to stay and no longer. That is the reason why we do not permanently cure more morphin patients. What we need at present is legislation empowering the keeping of such persons in institutions until they have recovered.

DR. A. B. RICHARDSON, Washington, D. C.—I have listened with great pleasure to the Doctor's paper and wish to say that it corroborates my experience in almost every particular, especially in regard to the large number of these cases that we find among physicians and their families. In regard to the withdrawal of the drug, it seems to me that the indications that should guide us are the physical disturbance rather than the psychic impression or the physical distress as described by the patient. I doubt whether gradual withdrawal of the drug very much diminishes the sum total of the patient's suffering. In the gradual withdrawal his sufferings are extended over the greater length of time throughout which it continues. We all know that as long as a patient is taking any of the drug at all, there will be a certain amount of psychic disturbance, which is not removed until the drug is totally displaced. There is one condition, or rather an interesting fact, in regard to the method of treatment that came to my knowledge a few days ago, and were I to mention the name of the author of this treatment, I am quite sure you would be surprised that a physician of the prominence of this man should advocate such a method of treatment. A physician of Washington called me in consultation to see his wife who had been a victim of the morphin habit for a good many years. I had been consulted in the matter a good many times. He told me that she had been seen by some of her relatives and that a physician in the neighborhood had stated that he had a new cure for the opium habit. She went under the care of this physician, and in two or three weeks the Doctor went over to see his wife and was told that she had entirely recovered; that she had been free from the use of the drug for two weeks, which had been suddenly withdrawn when the treatment began. The husband made inquiry as to the nature of the treatment and found that it was by means of hypodermic injections of hydrobromate of hyoscin. I do not know the size of the dose. In a very few days the patient was attacked with a violent attack of acute mania, and was sent to an institution where she still remains. When she entered the institution she was very much depressed, and in such a condition that the superintendent did not think there was any hope at all, but by careful nursing and careful attention to her heart finally the collapse was overcome and the patient is now gradually improving. It seems to me that in any treatment for the drug habit, we should not use anything that is so depressing as a treatment of this kind. I was very much surprised that this physician, who is an extensive writer on medical subjects, should have conceived this new cure for the drug habit.

DR. W. J. HERDMAN, Ann Arbor, Mich.—I would not prolong this discussion, except for its extreme importance to us all. A matter of this kind always recalls to my mind the story of the old farmer and his sons who, after a freshet, were trying to rescue some of their sheep which had gotten out of the pasture into the stream, and the old farmer and his sons stood on the bank of the stream, and as each sheep floated down with the current, at great risk and great labor, they would rush in and get it out and bring it to the shore. Suddenly the idea struck them that they had better go further up the stream and discover how the sheep were getting into the stream. They did so and found that the sheep were in the corner of a field where the ground was being washed away and they could not help themselves from falling in. So they simply opened the fence and let the sheep out, thus doing away with the labor of catching them as they came down the stream. Now, Dr. Burr has said that 50 per cent. of all the cases of the drug habit that have come under his observation have been physicians or in physicians' families. That statement has been confirmed by several who have spoken on this subject. The fact of this drug habit is a sad thing and when we consider that such a large percentage of the persons who are thus addicted to the use of such a drug and who become victims of it are persons who are themselves in a position largely to discourage drug taking, then it becomes even sadder. If 50 per cent. of the victims are physicians, then 50 per cent. of those who become habitués are the results of the unwise and injudicious use of such a drug as this in the practice of physicians. As a teacher, I have noticed this disposition for years among the advanced medical students. I do not say that it is a very prevalent habit, but I do say that it is a very common habit among the students, especially when they are approaching examinations. In order to meet the demand on their energies, in order to meet the emergency, students in medicine are very likely to buoy themselves over that particular strain by means of a drug. It is sometimes strychnia,

it is sometimes morphia; at other times it is bromid, at other times it may be cocain, but they are very likely under such a strain to resort to some drug instead of to physiologic, healthful and normal methods of meeting the demand. Now, if a young man goes out into practice with this habit established, and is confronted with the emergency and the demands of the exigency of his practice, he is then much more likely to resort to such methods for himself. In addition I have noticed this tendency in young men going out into practice. They are brought into the presence of pain; naturally their whole desire is to relieve it. If the man who has preceded them has not made a very brilliant record; if it is a case of neuralgia, for instance, or a case of locomotor ataxia that has been somewhat aggravated, that young man desires to do something promptly, something spectacular, and he is very apt to take out of the locker the most powerful drugs that he knows anything about and employ them, forgetting the consequences of the thing, forgetting that he may be doing an injury to the patient that eventually will be a vast deal worse than the present pain, and I believe that this manner of dispensing on the part of these young men, and the teacher of these young men is very largely responsible for many of these conditions. In regard to the teachers of therapeutics, I think it is unfortunate that the teachers of this subject should not have more practice in dealing with patients. So large a percentage of the teachers of therapeutics are laboratory men at the present time, animal experimenters, men who can tell you what a drug will do to the circulation, what its effect will be on the respiration, and yet they have not had that experience in dealing with humanity that brings to their notice the influence of habits. The necessity of cautioning these young people with reference to the ultimate effects of using these drugs indiscriminately is very apparent. I think that the method of teaching at the present time is, to a certain extent, responsible for this result. So grave has this question appeared to me from time to time and the cases that have come to me, and the difficulty of properly handling those that are not in institutions and, as Dr. Collins has said, can not be brought into institutions, that I feel it must appeal to all of us. As Dr. Tomlinson has said, the dealing with these cases under such circumstances is very difficult, and I have not failed in my attempt to impress on the minds of my students how unwise is the indiscriminate use of these powerful drugs. I frequently say to them, "I am engaged in practicing neurology, and perhaps have more occasions to deal with pain and its manifestations than the average general practitioner. I do not make use of probably two grains of morphin in the course of a week on an average, and I am very seldom called into consultation with general practitioners who do not use anywhere from 10 to 15 to 40 to 100 grains of morphin per week. Now, gentlemen, if I, in the class of practice that I am engaged in, can get along with such a small amount of a dangerous drug, certainly it is not necessary to make use of it to the extent that is being done. I accomplish this partly from sedatives, partly from the use of other methods and it is far better, even for the immediate results, than the use of these powerful drugs." Now, the thing that ought to be impressed on our minds is that the preventive means are going to be the most productive of good results and are the ones that we should keep before us in our methods and to which we should direct the attention of our brother practitioners and those who are to take up this work in the future.

DR. BURR, in closing—My principal reason for reading this paper was the apparently growing tendency, as indicated by journal articles, to the treatment of drug addiction by the very, very gradual reduction of the drug; the reduction drawn out over a period of months. This treatment I have never yet found necessity for and my own experience with the disease would contra-indicate it. In reply to Dr. Collins' question, as to what I mean by the abrupt withdrawal of the drug, I mean the withdrawal absolutely of the drug within two or three days. The treatment which he recommends—the withdrawal of the drug within ten days or two weeks—I would call the rapid reduction of the drug. I agree with him that you can reduce the amount during the first two or three days to a very, very small percentage of what the patient has previously been taking. You can reduce the amount to half a grain or a grain, even where the patient was previously taking very much more. There is in Michigan a law which gives good results, and some patients have been placed under my care in consequence of it. The law permits the placing of a patient who is addicted to any drug habit under guardianship, and then by the consent of a judge of probate court the guardian may place his patient in an institution for treatment for the habit. This law is similar in its operation to those for the commitment of the insane.

I agree with Dr. McBride that it is very important not to take the patient into consultation in regard to matters of treatment. I am in the habit of saying to the patient the moment he comes in: "You must not ask me what I am giving you; you must not ask me how I am treating you; you must not ask me the amount of medicine you are taking, nor what you are taking, because I do not wish to be discourteous. If you do ask any questions I shall be compelled to say that I can not answer. So let us have that understanding in advance, that I can not tell you what you are taking." If I give a hypodermatic, or if I employ medicine in any other way, I am very particular that the patient shall not know the contents of the medicine or the contents of the tablet or the contents of the hypodermatic, whatever it may be. To sum up again, I favor, as a rule, the rapid reduction of the drug in the treatment of these cases.

CHOLERA ABOARD THE U. S. ARMY TRANSPORT SHERMAN.

EXPERIENCES OF THE ARMY SURGEONS IN CHARGE OF THE CHOLERA CASES, SUSPECTS AND CONTACTS DISEMBARKED IN JAPAN FOR QUARANTINE: DESCRIPTION OF THE NEW JAPANESE ANTITOXIN AND CHOLERA VACCINE.

WILLIAM C. MABRY AND HARRY C. GEMMILL.
CONTRACT SURGEONS, U. S. ARMY.

August 26, at 4:30 p. m., the U. S. Army transport *Sherman* left Manila, P. I., to enter on five days' quarantine at Mariveles Bay preparatory to sailing to San Francisco via Nagasaki, Japan. The *Sherman* arrived at Mariveles at 6 p. m.

During the ensuing night a first-class passenger became ill and on the 29th died of Asiatic cholera. The transport was at once disinfected and held an additional five days in quarantine, when, all danger having passed, September 4, she proceeded on her voyage.

September 7 another case of cholera was discovered, and up to the time of the *Sherman's* arrival at Nagasaki, 5:30 p. m., September 9, three more cholera cases had developed, and of the four soldiers thus affected two had died and been buried at sea.

The Japanese quarantine authorities came aboard at once on the ship entering the bay and removed the two surviving patients (one in a dying condition) to their quarantine hospital and held the transport for disinfection, a process which they subsequently administered most efficiently.

As all these latter cases had developed among the soldier patients who were quartered in an improvised hospital on a lower troop deck, it was patent that for a thorough disinfection of both men and quarters, the men must be moved ashore and placed in an emergency hospital. Through the efforts of Captain Jackson, assistant surgeon of Volunteers, arrangements with the Japanese officers were readily made to do this, and on the morning of September 10 Contract Surgeon William C. Mabry and Harry C. Gemmill, with two acting hospital stewards and ten privates of the hospital corps and ninety-six patients and contacts, with five days' rations and other supplies, were disembarked with

orders to establish and operate such a hospital until the infection of cholera had been eradicated.

On landing, the entire detachment and the buildings to be used for various hospital purposes were thoroughly disinfected and cleansed. By 4 p. m. all this had been accomplished, quarters assigned and the hospital in complete running order, no untoward effects from the exertion and excitement incident to the transfer having resulted.

Of the ninety-six men so transferred four were attendants who had nursed cases of cholera and ninety-two were being sent home for disability as follows: From dysentery, amebic, chronic, 30; other dysentery, sprue and gastroenteric diseases, 32; venereal diseases, rheumatism, tuberculosis, wounds, etc., 30. Of these a number had had cholera in the islands. Considering the class of patients in the hospital it was almost a certainty that the infection had spread more or less. It was therefore no surprise when three new cases developed ashore on the 12th and three more on the 13th of September. All these men had been isolated on the first appearance of suspicious symptoms and were transferred to the cholera hospital as soon as the diagnosis was clear. With these six men, who were infected aboard ship, the infection terminated, and on the 19th, the regular five days' quarantine having elapsed, the remainder of the detachment re-embarked and on the 20th the *Sherman* resumed her interrupted journey to the states, and after another six days of quarantine at Angel Island was permitted to proceed to San Francisco, arriving October 14, after a trip of fifty-one days.*

THE JAPANESE ANTITOXIN AND TOXIN.

In the treatment of cholera the Japanese are using a blood-serum antitoxin and for prophylaxis a toxin or "cholera vaccine." The blood-serum antitoxin is obtained from a horse immunized to the comma bacillus in much the same manner as that practiced in the preparation of the antitoxin of diphtheria. It is also administered to patients in the same manner as that antitoxin and in doses of from ten to seventy-two grams in twenty-four hours, according to the emergency of the case.

The method employed in the preparation of the prophylactic toxin is not that of Haffkine nor are the reactions in any particular nearly so severe. In Haffkine's inoculations the patients are always so severely affected with fever and pain as to require them to take to bed for from six to twenty-four hours, while in the Japanese this severity is unknown. The toxin is prepared as follows: So much of a pure culture of virulent comma bacilli as can be taken up on a platinum wire with a 0.25 cm. loop is added to 1 gm. of a 0.5 per cent. solution of sodium chlorid; after agitation sufficient to thoroughly distribute the bacilli the solution is placed in a hot-water bath at 60 C. for thirty minutes, then enough acidum carbolicum added to produce a 0.5 per cent. solution of that reagent and the resulting preparation injected at once or preserved in corked and sealed blue-glass bottles. An injection of 1 gm. of this toxin is determined in Japanese laboratories by the usual means, to confer after the second day decided protection if not practical immunity for from four to eight weeks, the symptoms in case of cholera developing being ameliorated and the prognosis made favorable accordingly. A second injection of 2 gms. seven days after the first and a third of 3 gms. after twenty-one days are determined by the same means to confer immunity to cholera for from fifteen to twenty-four months.

Both the antitoxin and cholera vaccine are prepared and standardized in the "Imperial Laboratory" at Tokyo, of which Kitasato is the chief, and are for the use of public officials only, a sufficient supply for private physicians not being available at this time.

The present epidemic of cholera being the first to occur in Japan, and their toxin and antitoxin now used practically for the first time, there are as yet no published statistics to offer with this article. The Japanese expect to publish full data concerning the treatment in this epidemic at its close, probably about March, 1903.

From official information by Doctor Kikuchi, chief of the Nagasaki quarantine medical staff, we cite the following:

In regard to the antitoxin: At this station we have had a series of thirty-one cases of cholera, all of which have been taken from vessels in quarantine and have received the antitoxin injections, with but one fatality.

In approximately seven hundred cases of cholera in Nagasaki and suburbs up to September 15 the mortality has been about 35 per cent., all cases included; very few, however, have died who received treatment by the blood serum administered in reasonable time. (In the Philippines and Manila the mortality is from 70 to 80 per cent.—M.)

We consider that a case of cholera not in extremes will recover under proper administration of the blood serum.

In regard to the prophylactic toxin or cholera vaccine: All the doctors, directors, nurses, attendants and coolies of this station have received two immunizing injections, and although constantly in contact with the disease, no case of cholera has occurred among us.

On the outbreak of cholera in Nagasaki we determined to immunize all the inhabitants of a small town near this station from which we obtain all our coolies. With this purpose in view we proceeded to that town one morning and inoculated a large number, but did not have enough vaccine to conclude. The afternoon of the same day ten cases of cholera broke out there, six among the non-inoculated, all of whom died, and four among the inoculated, of whom two died. After this day no more cases occurred among the inoculated, although the infection spread among those not inoculated and proved very fatal, owing to the fact that the demand for the antitoxin throughout the empire being so great the laboratory at Tokyo could not supply us enough to successfully combat the infection.

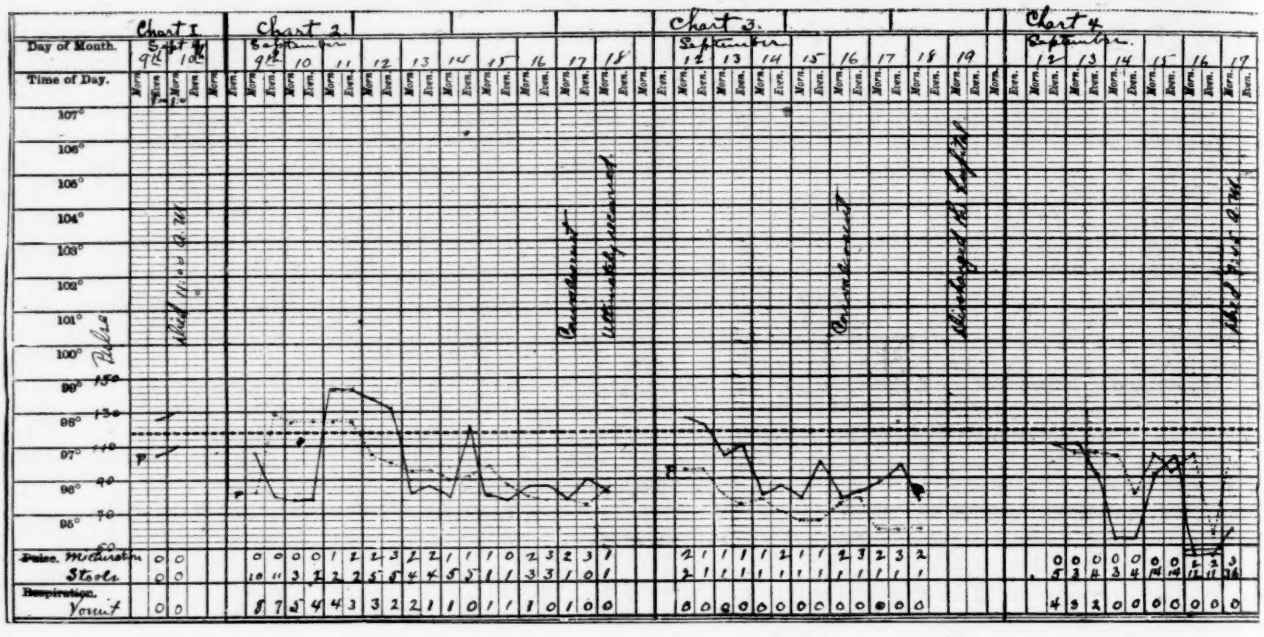
RESULTS OF USE OF ANTITOXIN AND TOXIN.

These items of information decided us to use both the antitoxin on the cholera cases as they developed in our hospital and the vaccine for prophylaxis on all available patients. This was done in the station and cholera hospitals without expense to us for material or the services of Japanese surgeons and nurses as required. For therapeutic and clinical data in regard to the eight cholera patients treated with the antitoxin see Charts and Notes 1 to 8 inclusive.

This series of eight cases gives a mortality of 50 per cent. Of the four cases which terminated fatally, all were very sick men whose ultimate recovery was doubtful without the intercurrent attack of cholera. Of the four cases which recovered Cases 2 and 6 were very severe, and would, in our opinion, have resulted fatally but for the treatment with antitoxin. Cases 3 and 5 were diagnosed on the first appearance of symptoms and were apparently aborted by a comparatively small dose of the antitoxin. Marked amelioration of all symptoms followed

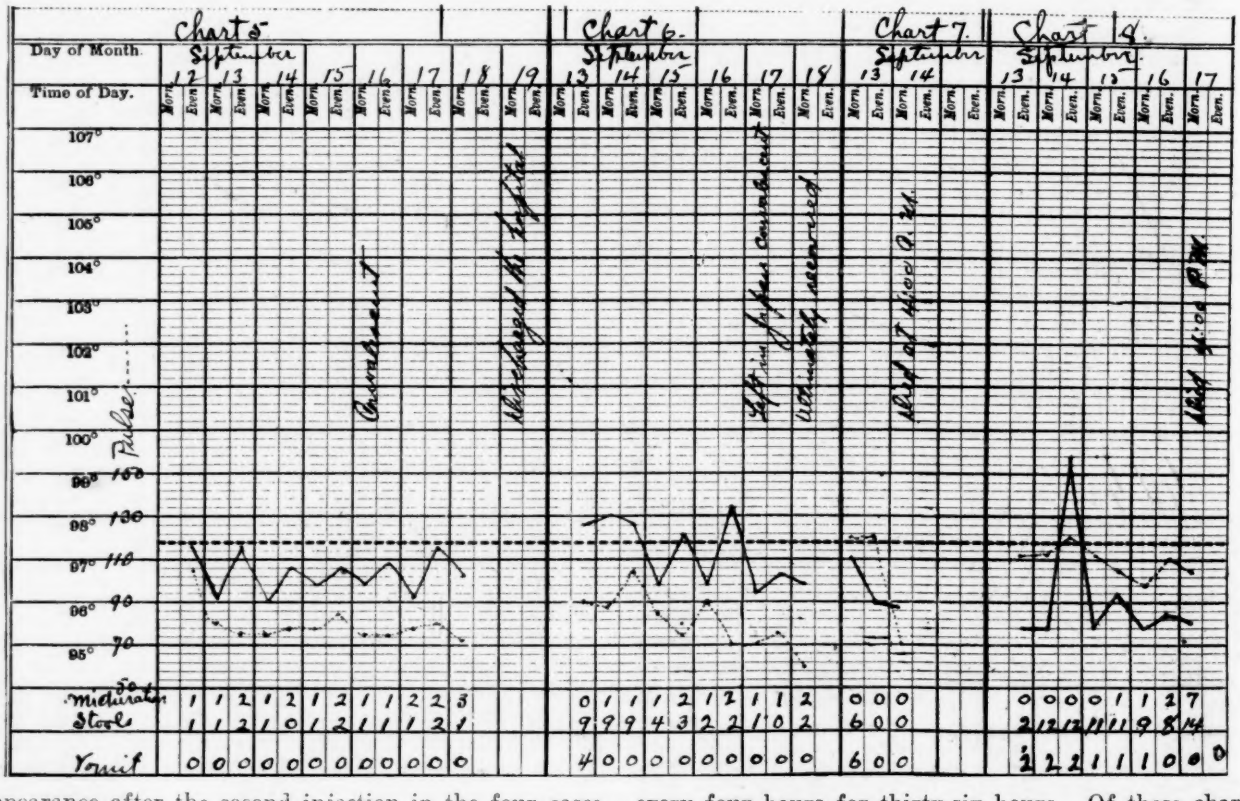
* In all, ten cases occurred among the patients and attendants. Of the four aboard, three died, of the six ashore three died. As a matter of interest only we mention that the focus of this infection can not be satisfactorily traced to the case of the cabin passenger who died at Mariveles Bay. It is very probable that a mild undiagnosed case of cholera occurred in the improvised hospital among the chronic dysentery, diarrhea or by relapse or recurrence in an old cholera case, the exacerbation of symptoms in such a case easily escaping detection. The direct means of spreading the infection was probably a drinking cup at the water cooler in the ward.

the injections in all of the cases, the effect on the diarrhea, vomiting, aphonia and anuria being marked, in Case 4 the urinary function being restored after four and one-half days' suppression. The comma bacillus was demonstrated in all the cases by both the Japanese doctors and ourselves by culture tests and successive examinations after the injections of antitoxin showed marked diminution in the numbers of the bacilli present in the stools of all the patients and a complete disappearance after the second injection in the four cases which recovered.



Concerning the prophylactic injections of the toxin or cholera vaccine: There being no data as to the effect of such injections on Caucasians, and fearing to give it to sick men without it, the surgeons in charge, that it might be intelligently administered, took the injections themselves, Dr. Mabry on the 14th and Dr. Gemmill on the 15th of September. With their experiences as a guide thirty men were selected and given the injection on the 16th and fifty-three more on the 17th, the balance of seventeen men being rejected because of their extreme debility.

In all eighty-five men received the injection, charts being prepared showing temperature and pulse rate



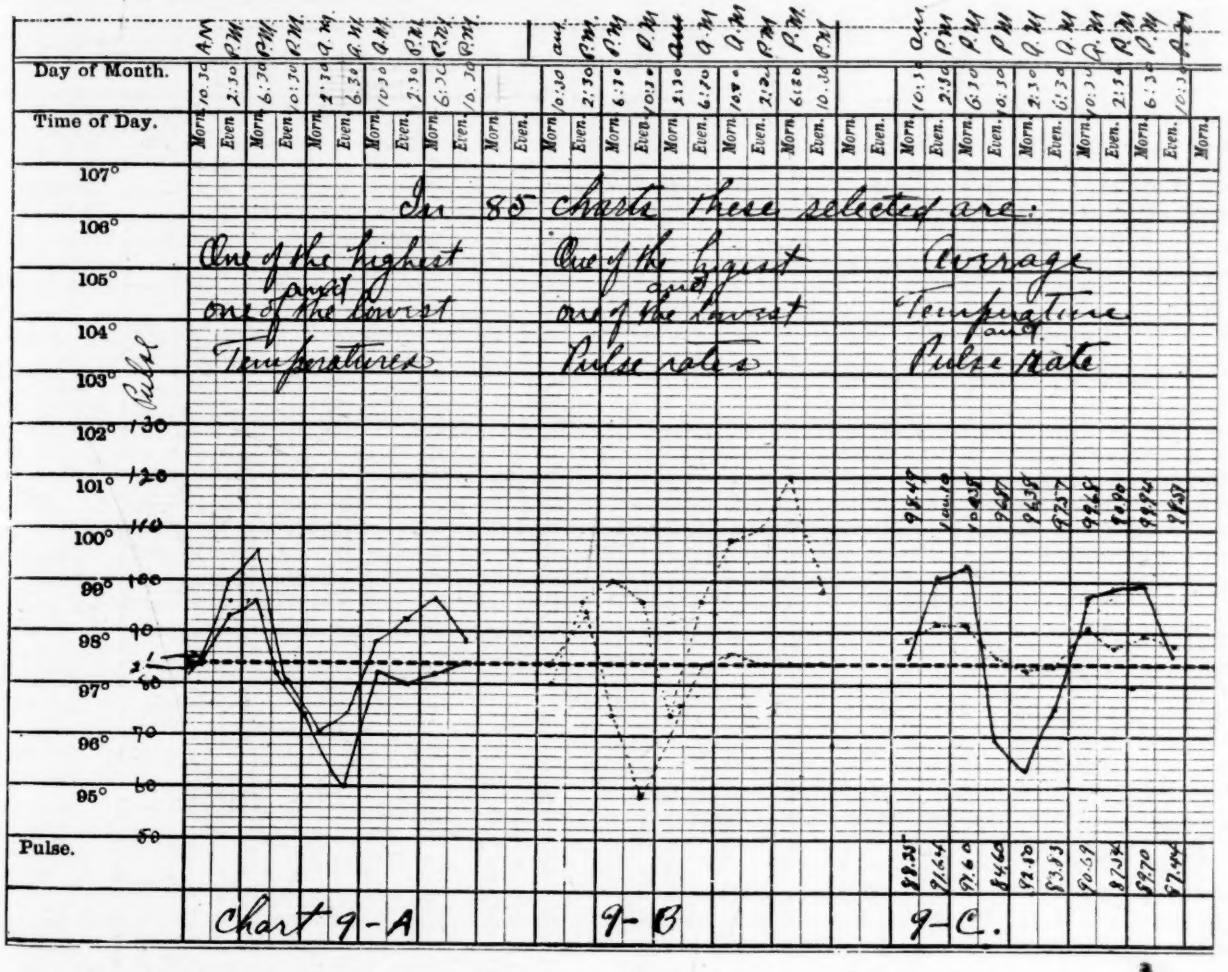
every four hours for thirty-six hours. Of these charts only the extremes of pulse and temperature in uncomplicated cases and the average of all charts are here reproduced with general notes. See Chart 9 A, B and C, and Note 9.

The detachment left Japan previous to the time set

for the second and third injections, and as the continuance of the same was not indicated the Japanese officials were loath to furnish so large a quantity from their limited supply as would have been necessary to continue the inoculations. They presented to us enough vaccine, however, to continue the series in the cases of the two surgeons and their three stewards who volunteered to undergo the experiments.

These injections were given to these five men en route to the United States and charts and notes were carefully prepared in each case. These are here reproduced in full, with an average chart added. (See Charts 10 to 15 inclusive and Notes 10 to 15.)

At this date (October 22) no sequelæ have occurred in any case, two of the four convalescents left in Japan have arrived in San Francisco, and the other two are



en route perfectly recovered. In their cases no tumefaction or sequelæ remain and their convalescence has been more rapid than is usually the case. The results obtained by this experience are, of course, very limited, but since cholera has become a live, interesting issue with us, and since the "text-book" methods employed in the islands are so unsatisfactory, anything which promises so much as this antitoxin of cholera should be thoroughly studied.

While it may be a matter of some chagrin that we should be two or more years behind the Japanese investigators who have " in time of peace prepared for war" on cholera, we can not give this progressive new nation too much credit for her achievements, and it should be a matter of pride to us, now that Japan has become a power along all lines and such a close and friendly neighbor to us in the far East, that it was our own Perry who plucked the bandage from her eyes and started her people in an era of unprecedented prosperity.

CHARTS AND NOTES.

CASE 1.—Age 23; diagnosis dysentery, chronic; much emaciated; marked debility; attacked by cholera 10 p. m. September 8; rapidly developed typical collapse of cholera; taken ashore and admitted to cholera hospital 8 p. m. September 9, in dying condition; temperature 98.8 F., pulse 105; marked aphonia and anuria; received 40 gms. antitoxin at 8:30 p. m. At 8 a. m. September 9, temperature 99 F., pulse 110; died 11 a. m., having had no vomiting, defecation or urination since the injection.

CASE 2.—Age 31; physical condition good; diarrhea during night of September 8, 20 stools; isolated aboard ship 6 a. m. September 9; temperature 97.8 F., pulse 82; rice water discharges and vomit during the day, transferred to shore cholera hospital 8 p. m.; temperature 96.6 F., pulse 128; received 36 gms. antitoxin 8:30 p.m. the 9th and at 8 a. m. the 10th; patient convalescent September 19; eventually fully recovered.

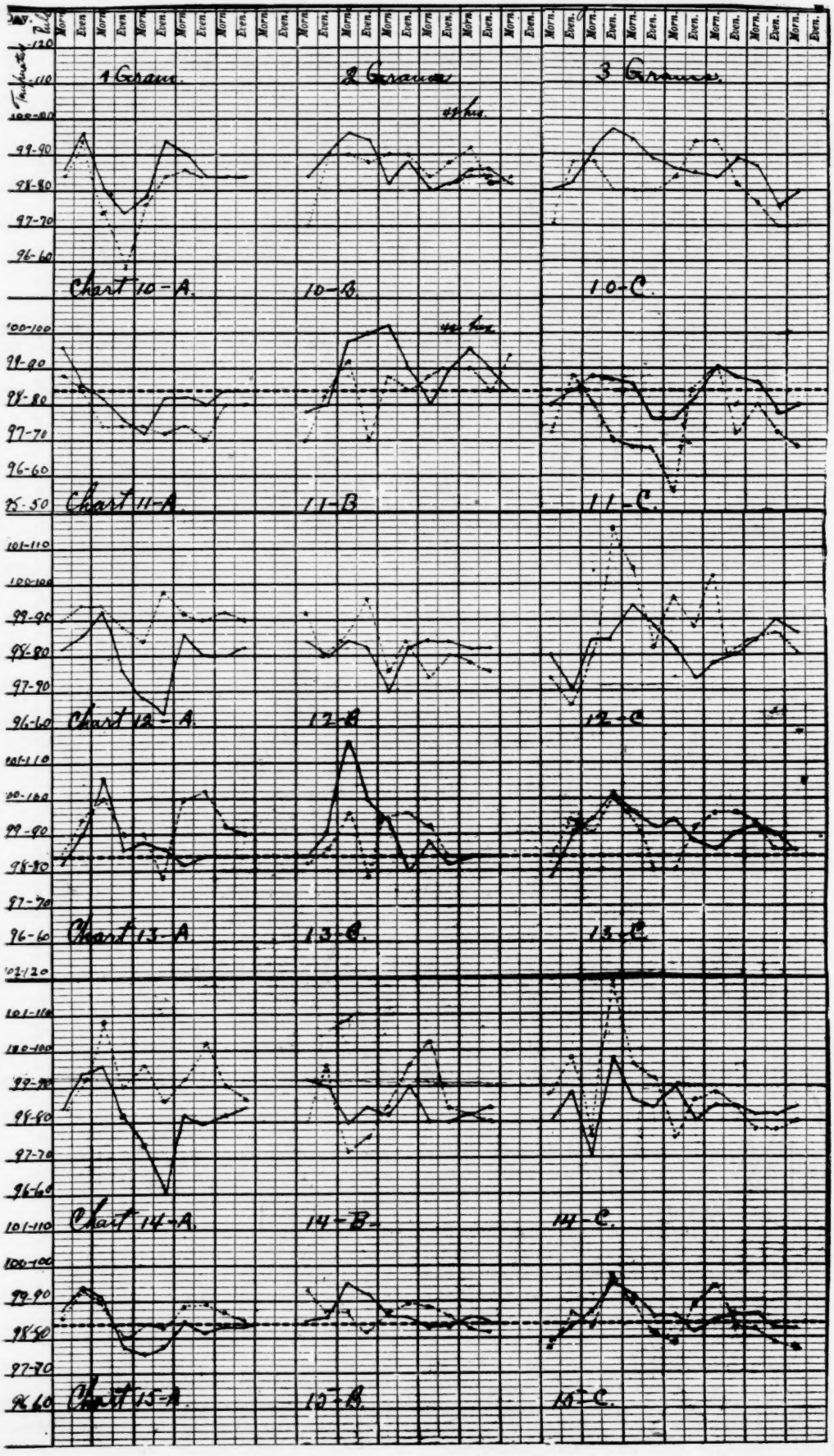
CASE 3.—Age 24; diagnosis, convalescent after operation for removal of tuberculous cervical glands, physical condition fair; admitted to cholera hospital noon September 12; received 18 gms. antitoxin at 1 p. m.; discharged from hospital September 19, practically recovered.

CASE 4.—Age 46; diagnosis dysentery, amebic, chronic, extreme emaciation and debility, fecal incontinence; admitted to cholera hospital noon September 12; received 20 gms. antitoxin at 2 and 4:30 p. m. the 12th and 2 a. m. the 13th; died at 9:45 a. m. September 17.

CASE 5.—Age 23; physical condition good; admitted to cholera hospital noon September 12; received 18 gms. antitoxin at 1 p. m. the 12th; discharged from hospital, September 19, practically recovered.

CASE 6.—Age 28; diagnosis enterocolitis, chronic, physical

OBSERVATIONS ON PROPHYLACTIC "CHOLERA VACCINE" (TOXIN) INJECTIONS.



condition poor; admitted to cholera hospital 1 p. m. the 13th; received 30 gms. antitoxin at 6 p. m.; convalescent September 19, eventually fully recovered.

CASE 7.—Age 24; diagnosis gastroenteritis, chronic, extreme emaciation and debility; admitted to cholera hospital 2 p. m. the 13th; temperature 98 F., pulse 120; marked aphonia and anuria, the vomiting and diarrhea had ceased; received 20 gms. antitoxin at 6 and 10 p. m. the 13th; died at 4 a. m. September 14.

CASE 8.—Age 27; diagnosis dysentery, amebic, chronic, extreme emaciation and debility; admitted to cholera hospital 3 p. m. the 13th; received 20 gms. antitoxin at 6 p. m. and 25 gms. at 10 p. m.; died at 4 p. m. September 17.

CHART 9.—On account of detailed charts and notes following (see 10 to 15) this series of eighty-five charts is illustrated by extremes of temperature and pulse rates in uncomplicated cases only, with an average chart of the whole series. For the same reason the symptoms are divided into three groups, i. e., *a*, comprising about two-thirds of the cases; some tenderness and pain with slight tumefaction at point of injection, slight sensation of heaviness in frontal region with slight feeling of general depression. *b*. Comprising about one-fourth the cases; marked tenderness and pain, with more marked tumefaction and some discoloration at point of injection; moderate frontal or basilar headache; slight pain in axillary glands and considerable general depression. *c*. Comprising about one-twelfth the cases; marked tenderness and pain with moderate tumefaction and discoloration about point of injection, slight pain in axillary glands, cramping or pains in muscles of arms and legs, some precordial pain, slight nausea and marked though not serious depression. No temperature fell lower than 96 F., or mounted higher than 101 F. (uncomplicated); no pulse lower than 58 or higher than 120 (uncomplicated); and in no case did a needle abscess develop or were sequelæ of any kind remarked. All injections in this series were of 1 gm., given hypodermatically in the left infrascapular region.

Explanatory Note to Charts 10 to 15.—These charts record observations following prophylactic injections of cholera vaccine or toxin according to the Japanese method, i. e., of 1 gm. hypodermatically in the left infrascapular region, 2 gms. seven days later in the right and 3 gms. after twenty-one days in the left infrascapular region, temperatures and pulse rates being recorded every four hours until the reaction completed—thirty-six hours in the first and second (except two of forty), and forty-eight hours in the third. Temperatures drawn in solid lines, pulse rate in dotted lines. No needle abscess occurred; no tenderness or tumefaction persisted more than ten days, and with most careful observations no sequelæ have been detected.

CHART 10.—Contract Surgeon William C. Mabry, U. S. A. First injection, slight tumefaction and discoloration, marked tenderness and pain about point of injection, dull frontal headache, slightly feverish, slight precordial pain and well-marked depression. Second injection, more tumefaction (about 10 cm. in diameter) and discoloration, more pain and tenderness about point of injection, dull frontal headache, looseness of bowels with some griping, feverish and depressed with slight precordial pain and soreness of muscles. Third injection, slight tumefaction, slight pain, but extended area of tenderness about point of injection, slight frontal headache, supraorbital neuralgia and soreness of eye muscles, soreness of muscles of hands and feet, slight precordial pain, feverish, with loss of appetite.

CHART 11.—Contract Surgeon Harry C. Gemmill, U. S. A. First injection, slight tumefaction, marked tenderness and pain about point of injection, dull frontal headache, slightly feverish and depressed. Second injection, more tumefaction (about 10 cm. in diameter), marked tenderness and pain about point of injection, very feverish with some depression. Third injection, very slight tumefaction, slight pain, but extended area of tenderness about point of injection, dull frontal headache, supraorbital neuralgia with soreness of eye muscles, slight cramping of muscles of hands and feet with marked depression.

CHART 12.—Acting Hospital Steward Ami G. Weyant, U. S. A. First injection, slight tumefaction and discoloration, marked tenderness and pain about point of injection, slightly feverish and depressed. Second injection, more tumefaction (about 10 cm. in diameter) and discoloration, more pronounced pain and tenderness about point of injection, slightly depressed. Third injection, slight tumefaction, marked pain and extended area of tenderness about point of injection, soreness of muscles with "growing" pains in arms and legs, severe headache, loss of appetite and looseness of bowels, with moderate griping.

CHART 13.—Acting Hospital Steward Wm. W. Arbery, U. S.A. First injection, slight tumefaction and discoloration, marked pain and tenderness about point of injection, soreness of arm and leg muscles, slight pain in axillary glands, decidedly feverish but slight depression. Second injection, more tumefaction and discoloration, severe pain and tenderness about point of injection, decidedly feverish and sleepless. Third injection, slight tumefaction, marked pain and extended area of tenderness about point of injection, dull "growing" pains in arms and legs, dull frontal headache, very feverish and nervous, griping of bowels without looseness, nausea, vomiting once.

CHART 14.—Acting Hospital Steward Fred W. Wengenroth, U. S. A. First injection, slight tumefaction and discoloration, marked pain and tenderness about point of injection, slight soreness of arm muscles, dull frontal headache, slightly feverish, vertigo, precordial pains and marked depression. Second injection, more tumefaction and discoloration, marked pain and tenderness about point of injection, aching of arm and leg muscles, slightly feverish with precordial pains and slight depression. Third injection, very slight tumefaction and discoloration, less marked pain but extended area of tenderness about point of injection, "growing" pains of arms and legs, dull frontal headache, slight depression, looseness of bowels with moderate griping.

CHART 15.—A, B and C are average charts of the preceding five sets. It will be noticed that each succeeding reaction is longer than the last and contains some symptom that is more severe. In the second the pain, while in no case approaching that of the Haffkine toxin, is more severe and the fever felt more markedly. In the third the headache, tenderness, bowel symptoms and muscular pain are more pronounced, the tenderness in cases extending over an entire side, but the fever, tumefaction and depression being less than in either of the other injections. In no case of the entire number were the symptoms serious even to the extent of alarming the patient himself and none were so affected as to confine him to his bed.

Unethical Pharmaceutical Houses.—To modern pharmacy we owe much and to pharmaceutical methods we shall owe much more in the future, but the profession has no more insidious foe than the large borderland pharmaceutical houses. No longer an honored messmate, pharmacy in this form threatens to become a huge parasite, eating the vitals of the body medical. We all know only too well the bastard literature which floods the mail, every page of which illustrates the truth of the axiom, the greater the ignorance the greater the dogmatism. Much of it is advertisements of nostrums foisted on the profession by men who trade on the innocent credulity of the regular physician, quite as much as any quack preys on the gullible public. Even the most respectable houses are not free from this sin of arrogance and ignorant dogmatism in their literature. A still more dangerous enemy to the mental virility of the general practitioner is the "drummer" of the drug house. While many of them are good, sensible fellows, there are others, voluble as Cassio, impudent as Autolycus and senseless as Caliban, who will tell you glibly of the virtues of extract of the coccygeal gland in promoting pineal metabolism, and are ready to express the most emphatic opinions on questions about which the greatest masters of our art are doubtful. No class of men with which we have to deal illustrate more fully that greatest of ignorance—the ignorance which is the conceit that a man knows what he does not know; but the enthrallment of the practitioner by the manufacturing chemist and the revival of a pseudoscientific polypharmacy, are too large questions to be dealt with at the end of an address.—Osler.

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ANTI-INFECTIOUS ACTION OF CREDE'S COLLARGOL.

We know a number of familiar antiseptic substances that quickly destroy pathogenic bacteria with which they are brought in contact outside the body. From time to time it has been proposed to introduce such antiseptics into the body in order to directly attack general infections, like puerperal septicemia, acute endocarditis and the like. The substances that exercise such prompt bactericidal effect in the test tube might have like action in the living organism harboring infectious organisms. Unfortunately, the conditions in the living body are so infinitely more complex than in the mixtures of the test tube that we long ago learned not to apply the results obtained in the latter to actual infections, and yet the necessity for efficient and otherwise harmless "internal antiseptics" has led to more or less effort to establish by empirical methods the usefulness of certain substances of this class.

Perhaps Credé's colloid silver (collargol) has acquired as much reputation as a safe internal antiseptic as any. It has been introduced into the body by means of inunction of the unguentum Credé, in pill form, and also by means of subcutaneous and intravenous injections. A large number of the most varied forms of infection, local, general and mixed, and human as well as animal, especially equine, have been treated with collargol in some form or other. The results obtained have been contradictory, some praising colloid silver as a specific remedy against sepsis, others denying it all claim to efficacy. It is absolutely a safe statement that collargol has not been able to stand the test of fire applied to it by clinical experience. The apparently brilliant recoveries ascribed to its use are explainable in other ways. All physicians are familiar with the rapid and sudden, apparently spontaneous changes in the clinical picture of various infections; long-continued septic fevers may suddenly show a drop in the temperature that is followed by recovery without the influence of any medicine.

There has been a most noteworthy dearth of accurate experiments with animals in order to establish definitely the real effect of colloid silver on infections, experiments easily so controlled as to exclude the grave sources of error always attaching to clinical work of this kind. This lack of experimental study is supplied in a large measure by the recent investigation of Cohn[1] in Pfeiffer's laboratory in Königsberg. The experiments of Cohn are extensive. They include the study of the bactericidal action of collargol in the test tube in watery solution and when mixed with serum; the actual effect on experimental infections with various bacteria, and the study of the tissues and organs of animals injected. Because of the conclusiveness and uniformity of the results only brief recapitulation is necessary: So early as 45 minutes after its introduction into the circulation colloid silver is no longer demonstrable in the blood because it is deposited as demonstrable precipitate in the organs almost immediately after the injection, and this precipitate does not possess any bacterial action in infections. We believe that these experiments settle the fate of collargol as a specific against sepsis. Its history teaches again the important lesson, too often neglected, that accurate experiments carefully controlled will determine many questions more quickly and more decisively than clinical experience.

1. Centralbl. f. Bakt., 1902, xxxii, 732-752 and 804-809.

PROFESSOR LORENZ.

The great notoriety which the daily press has given to a certain case of congenital dislocation of the hip, recently treated by a distinguished foreign surgeon, would lead one to think that the reduction of a dislocated hip of congenital origin was an unknown and unheard of thing before the arrival of Professor Lorenz, and that the learned professor had introduced a new and wonderful principle in surgery to an ignorant and benighted race. One could not blame the ordinary layman for entertaining such views after reading the extravagant and absurd articles that appeared day after day in the daily papers, but the intelligent members of the profession know that the operation has been repeatedly and successfully performed by many surgeons throughout the country. Those of the profession who are at all familiar with the subject are also aware that the so-called bloodless method was not original with Lorenz, although introduced into Germany and popularized by him, and to him is justly due great credit for the improvement in the method which his genius originated and the perfection of technic which he developed.

However, after all has been said for the bloodless method, it is by no means certain that it is the only method, or even the best method in certain cases. As our knowledge of the pathology of congenital dislocation of the hip increases it is found that in certain cases angular deviation of the neck of the femur, twisting of the upper end of the shaft of the bone, relative displacements of the lesser trochanter, etc., are present conditions which can only be remedied by an open operation, and such operations are constantly becoming more frequent at the hands of the surgeon. While it has been clearly demonstrated by Lorenz, Hoffa, Mikulicz, Schede and others that a large percentage of the cases of congenital dislocation of the hip can be improved or functionally corrected by the bloodless method, it has

also been demonstrated by the same men that in a large number of the cases thus operated on an anatomic reduction of the dislocation is not accomplished, but simply a transposition; or, in other words, the case is transformed from an upward and backward dislocation into a forward dislocation, which corrects the lordosis and does away with the peculiar waddling gait.

Nor can the statement that the bloodless method is perfectly safe and harmless be substantiated by the facts. Lorenz himself reported three deaths from chloroform in 360 cases, or one death to 120 cases. This gives a proportion 20 times as great as the average deaths from chloroform in general surgery, and shows what a severe shock the forcible and extensive laceration of the tissues produces. Fractures of the femur and separation of the upper epiphysis have occurred repeatedly, as well as lacerations of the sciatic nerve, producing permanent paralysis, laceration of the vessels, gangrene of the leg, laceration of the perineum, etc. These accidents have occurred in the hands of the most expert. Further details of such accidents may be found in an article by Heusner abstracted elsewhere in this issue of THE JOURNAL.[1] Even in the few cases operated on by Lorenz during his stay in Chicago—and they were cases carefully selected from a large amount of material—there was one case of fracture of the femur, one of extensive hematoma and one of complete laceration of the perineum extending from the vagina into the rectum.

For the newspaper unsavory notoriety, however, Professor Lorenz should not be blamed. He is personally a charming character and a gentlemanly scholar, but was unfamiliar with the ways of this country and the ubiquitous and pestiferous newspaper reporter, and should have been better advised. In departing Professor Lorenz will leave behind him many pleasant memories of a genial gentleman and a master, but it is unfortunate that such events as his visit should be seized on by any as an opportunity to cover themselves with reflected glory.

PHYSICIANS AND LABOR ORGANIZATIONS.

In organizing a physicians' protective association in California recently it appears that inquiries were made by some parties as to its possible affiliation with the American Federation of Labor. The following letter, taken from the *Stockton* (Cal.) *Independent*, explains the status of medical men in relation to that body, and will be taken, we trust, as conclusive enough to prevent any future suggestions of the kind:

WASHINGTON, D. C., Nov. 26, 1902.

Mr. H. M. Alexander, Organizer A. F. of L., Record Building, Stockton, Cal.

Dear Sir and Brother:—Your favor of November 18 at hand, and contents noted. I beg to inform you that it is against the principles of the American Federation of Labor to issue charters to professional men. The only union which is made up of men engaged in different crafts and calling is federal labor, but even in this it is stipulated that only wage earners shall be admitted, and inasmuch as doctors, lawyers and professional men are not considered wage earners, they are not eligible to membership in local unions in affiliation with the American Federation of Labor. As a rule they are desirous of becoming members only for political reasons, and if they have any other purpose in view such as would be of benefit to organized labor in every instance it has been found that they can be of as much advantage to organized labor outside of its ranks as they can if they are members, and in most instances even more.

With best wishes, I am fraternally yours,

FRANK MORRISON,
Secretary, American Federation of Labor.

We believe that the secretary of the federation is correct as to the usual motives of professional men in desiring to join his body. The professional advantages would certainly be small, if indeed they could be found, and the embarrassments from the connection in other ways most serious. A little thought will readily demonstrate this to any one who is acquainted with the labor movement and its tendencies; the fact needs no illustration. Moreover, as the secretary says, physicians who wish to be of any advantage to organized labor can do more in this way outside than within its ranks.

On the other hand, we can protect ourselves far better and more consistently with the true spirit of our profession in our own organizations. These must necessarily be essentially different in their objects and methods from the modern labor union or federation, and it is well to keep this in mind. There are, it appears, some among us who think the salvation of the profession is in a course that would not elevate us in public estimation, to state it temperately, and would do no one else any adequate good. The average labor organizer is ready to take in everything from cash girls to school teachers, and it is well that his limitations should be thus authoritatively laid down by his own side.

We have no objections to labor organizations in themselves, and do not arrogate to ourselves any intrinsic superiority over any of our fellow men. There are, nevertheless, certain respectable professional and social traditions that it is well to regard, and one of them is that of the distinction between the learned professions and most other occupations. We shall wrong no one if we cultivate an honorable consideration of the dignity of our profession, and this we can do without detracting from or underestimating the special merits of others.

ENEMIES TO PROGRESS.

The Central Iowa Homeopathic Society at a recent session passed unanimously a resolution expressing its dissatisfaction with the Iowa State Board of Medical Examiners on account of its course in complying with the law and examining candidates for license. It also included an expression of its opinion that a diploma should be all that is required. This shows from what quarters we may look for opposition to the present salutary registration laws, and is indirectly a very obvious reflection on the class of material turned out by the doctor-manufactories in which the said society is

1. See p. 1627.

most interested. The special inciting cause of the resolution was a paper read by the Registrar of the College of Homeopathic Medicine of the State University on the "Present Status of Medical Legislation," and the resolutions, as the *Des Moines News* expressed it, suggest the import of his discourse.

INSURANCE COMPANIES AND TUBERCULOSIS SANATORIA.

The insurance companies of Germany have determined, after a three years' test, that it costs less to support sanatoria for their tuberculous policy holders than to pay the policies of the large number of those who would die sooner without sanatorium treatment. It has been argued that our American insurance companies should follow the example of the German companies, not as a matter of sentiment nor from charitable motives toward their policy holders, but as a safe and conservative business proposition. Here, however, fewer tuberculous subjects, and even subjects with a tuberculous history, succeed in procuring a life insurance policy, whereas in Germany the law prescribes that every laboring man shall have insurance; consequently, a larger number of undesirable risks must be carried, and hence the greater need for sanatoria. From the business standpoint, the advisability of maintaining sanatoria on the part of insurance companies is not as evident, and may be doubtful. At the same time those who are interested will do well to study the arrangement and the management of these German institutions, for the economic motives that originally prompted their instalment also guarantee the highest practical efficiency at the least possible cost.

THE NOBEL PRIZE IN MEDICINE.

A Nobel prize has been awarded, as we recently mentioned,[1] to Major Ronald Ross, the British army surgeon, for notable achievement in medicine. The Nobel prizes, founded by the Swedish millionaire and philanthropist, Alfred Nobel, are awarded annually for the most notable achievements in medicine, science, literature and the greatest service in behalf of peace in the world. The awards in medicine, science and literature are made by certain learned societies in Stockholm. To determine the recipients of prizes of this kind must always be a matter of great difficulty and discrimination, but we believe that the award of a prize to Dr. Donald Ross will meet with the hearty approval of American physicians and investigators. The results of the brilliant investigations of Ross in the etiology of malaria have established the essential rôle of the mosquito in the spread of this disease, a demonstration of direct practical bearing destined to save more human lives and to prevent more human suffering than lies in human power to correctly estimate. To lay bare the complicated methods employed by the parasites of malaria in order to maintain existence was the basis for the development of preventive measures, the central idea of which is to stop malaria-carrying mosquitoes from biting human beings. Truly no better example of the practical value of investigation can be cited than this.

1. THE JOURNAL, November 29, p. 1401, and December 6, p. 1468.

THE PROPOSED VIRGINIA ANTI-KISSING LAW.

It has taken considerably over a hundred years for Connecticut to overcome the reputation given it by a malicious humorist of Tory principles during the Revolutionary War. There are probably those who even now have as their principal mental association with the name of the state the story of the Blue Laws, and the fine for kissing on Sunday. There seems to be some danger that a similar obsession will seize some persons in regard to certain other commonwealths if some measures introduced into their legislatures are correctly reported. In Virginia the proposition is to enact that kissing be permitted only on the certificate of the family physician, and unauthorized kissing by any one with weak lungs or any contagious disease is made a misdemeanor punishable by fine. A similar law is proposed in Georgia, and unless the tendency is checked we may see the example followed in still other legislatures. It is difficult to see how such regulations are to be enforced, as kissing and telling are not generally supposed to go together. However unsanitary the practice, it will continue, and a little risk may only add an extra zest to the performance. Speaking seriously, however, such proposed legislation if offered in good faith is unwise because futile; if not in good faith it is unworthy trifling.

REVIVAL OF THE HEART BY MASSAGE.

Massage of the heart, in case of its stoppage, to revive its movements has been recommended and experimentally demonstrated, but the first successful case of its use in man was reported by Dr. E. A. Starling[1] at a recent meeting of the British Society of Anesthetists. In an operation for appendicitis on a man aged 65 under nitrous oxid and other anesthesia, both pulse and respiration ceased together, and artificial respiration and traction on the tongue failed to revive them. Then the surgeon, Mr. W. Arbuthnot Lane, pushed his hand up through the abdominal wound and grasped the motionless heart through the diaphragm. He squeezed it and felt it start pulsating, though no radial pulse could be felt. Artificial respiration and other restoratives were continued, and in about twelve minutes natural respiration reappeared and the pulse became perceptible at the wrist. The operation was then completed without the use of the anesthetic and the patient made a good recovery, with, however, some diaphragmatic tenderness. This rough-and-ready method and its success in this case is suggestive of important possibilities, and demonstrates that cutting operations in these cases are not essential and can be avoided. The previous failures followed extensive exposures of the heart either by rib resection or incision through the diaphragm, as recommended by Mauclaire (in two cases). This of itself introduces a serious complication, and Lane's success was probably mainly due to his avoidance of this. The case, as the *Lancet* remarks, "justifies us in saying that, if during laparotomy the patient's heart stops, the case should never be abandoned as hopeless until manual compression of the heart through the diaphragm has been performed."

1. Editorial, Lancet, Nov. 29.

LITERATURE REFERENCES.

An article in a recent medical weekly consisted of four columns of reading matter and two columns of bibliography. Over two hundred authors were quoted from German, French, Italian, Hollandish and Russian sources. Some twenty of the books and periodicals enumerated were found not to be accessible in the libraries of this country. The article was on a hackneyed subject and the literature to be complete should have included several thousand instead of several hundred references. The writer of this particular paper, who probably has no knowledge of any foreign language, manifestly did not consult the list of authors he referred to; the bibliography was either copied or compiled for him by some one else. This is an extreme example of a common abuse. The motive is dishonest. The pretense is altogether false. The borrowed halo of erudition fits badly. References to literature are of value chiefly to the original investigator and not to the casual reader. The former, however, wants the whole literature, and can find the desired information in an index of his specialty. The latter does not care whether Smith in America, or Müller in Germany, in 1856 or 1902, described this, that or the other case. Haphazard bibliographies, therefore, should be omitted. Seldom do they enhance the value of the ordinary article even when they are honestly compiled and accurate as far as they go. When they consist merely of a list of titles that has not been carefully verified and controlled by the author, they are altogether misleading, and hence worse than useless.

THE TOXIC ACTION OF THYROID EXTRACTS.

Thyroid medication has to some extent passed out of the hands of the physician; as an antifat remedy thyroid tablets are extensively and sometimes dangerously utilized by the laity. To the medical profession thyroid extract is well known as a powerful agent, and there are few of us who would not exercise some caution in its prescription for continuous treatment. The general public does not seem to be aware of its evil possibilities, and individuals occasionally suffer serious results from their ignorance. An instance of this is reported by a correspondent of the *British Medical Journal,* Dr. Stuart Tidey of Montreux, Switzerland. A lady, aged 40, died from cardiac failure which could not be traced to any definite cause during her lifetime. After death her husband asked the physician if he could make use of a large collection of drugs which she had been carrying around with her and using without medical advice. They turned out to be some pounds of thyroid tablets, of which she had, it appears, been taking as many as 8 or 10 a day. The original supply had been sent and recommended by a family nurse to reduce weight, and the patient had kept herself amply supplied from that time on, with the result of producing fatal thyroid poisoning. Thyroid extract, as is well known, may produce an enfeebled action of the heart when taken in excess, and in some cases of idiosyncrasy; it can certainly be classed as a dangerous cardiac depressant under certain circumstances, and Dr. Tidey very properly calls attention to the risks of its too popular utilization. He says he has ample evidence that it has become a fashionable drug with the public, for various purposes, and often, it is to be feared, is very ignorantly used. He mentions a case where it was sent to one of his patients to be given to her daughter, for the purpose of making her grow taller. We, as physicians, do not know all about the drug, but our estimation of its powers is apparently not equal to that of the laity. The newspaper information in regard to it is, in instances we have seen, so exaggerated with its scareheads that it is not surprising that the ordinary reader has erroneous ideas. As Dr. Tidey suggests, thyroid extract is a good subject for further investigation as to the special dangers of its long-continued use in ignorant hands. It may be that many more cases of fatality from this cause may be revealed.

Medical News.

ILLINOIS.

Cats Carry Contagion.—The board of health of Rockford, believing that cats are largely responsible for the spread of communicable diseases, has issued an order that in all cases where cats have their habitation in homes where scarlet fever, diphtheria or other kindred diseases are present, they must be killed.

Personal.—Dr. Max F. Clausius, formerly of Barrington, late acting assistant surgeon, U. S. Army, has returned from Fort Huachuca, Ariz., located in Palatine, and taken the practice of the late Dr. Maximilian Muffat.——Dr. Charles R. Parke, Bloomington, the dean of the medical fraternity of the city, who is about to move to Louisville, Ky., is to be tendered a banquet by the McLean County Medical Society.

Physician-Superintendent Desirable.—At the last meeting of the Chicago Medical Society, a resolution introduced by Dr. Isaac A. Abt was unanimously adopted to the effect that the society believed it to be to the interests of the administration of the Cook County institutions, Dunning, that a medical officer be in charge there, as by reason of special training and knowledge in medical matters a more satisfactory administration can be obtained under such a man.

Chicago.

Baby-Farm Ordinance.—The ordinance placing all institutions for the custody and care of infants in Chicago under the jurisdiction of the department of health went into effect December 1.

Personal.—Dr. William F. Jacobs has gone to Vienna for a six months' course of study at the university.——Dr. Jacques Loeb was given a dinner by the faculty of the University of Chicago, November 13. He is soon to assume a chair in the University of California.

Diphtheria Prevalent.—In November 356 cases of diphtheria were reported, an increase of 84 cases, as compared with the figures of the corresponding month of 1901. The 29 diphtheria deaths reported for the week ended December 13 is the highest number recorded in any week since that of March 3, 1900.

Senn Hall Dedicated.—The first of the new buildings of Rush Medical College was dedicated to the purposes of clinical instruction, December 17, with exercises in its large amphitheater. Sir William H. Hingston, Montreal, surgeon-in-chief of the Hotel Dieu Hospital and professor of clinical surgery in Laval University, delivered the dedicatory address.

Whooping cough is reported from many parts of the city. This disease, often regarded as trivial, is, at this season of the year, a most serious affection, because of the great danger from inflammation of the air-passages. The health department bulletin advises precautions, and says 25 per cent. of those under one year of age die if they contract whooping cough.

Smallpox in Suburb a Menace.—Chief Medical Inspector Spaulding says no new cases of smallpox were reported during last week, and adds:

Hammond, Ind., continues to be a menace to Chicago. They have 53 cases of smallpox, only 11 of which are in hospital; the others

are in their homes scattered about the city and unguarded. The officials have promised they would take the cases to the hospital, but up to the present time have not done so. East Chicago, Ind., has 3 cases of smallpox, which are being carefully watched. Chicago Heights has but one case of smallpox. The intelligent and vigorous work done by Dr. Schriebur, the health officer, and by the mayor of the place, has practically ended a severe outbreak of this disease. On the north of us, Evanston's health officer, Dr. Parkes, has been doing good work, backed by a vigorous, liberal and intelligent mayor. They have reduced the number of cases of smallpox from 68 to 15. There has been no new case in 27 days.

A Higher Death Rate.—While there were but four more deaths recorded last week than during the previous week, the total, 532, was 80 in excess of the number for the corresponding week of 1901, and the annual rate per thousand is almost 14 per cent. greater. The health department says:

The most discouraging feature of the general increase of morbidity and mortality is the increase of typhoid fever. Until within the last fortnight the public water supply had averaged fairly good for many weeks, but the typhoid deaths have increased from 9 in the week of November 22, to 18, 20 and 25, respectively, in the three succeeding weeks. The disease is generally distributed throughout the city.

KENTUCKY.

Bequests Reduced.—As the result of a compromise with the relatives of the late Mrs. Bullock, who made large bequests to Louisville charities, the amount originally bequeathed is somewhat reduced, but the John N. Norton Memorial Infirmary, Children's Free Hospital, Flower Mission and Episcopal Orphanage will each receive about $15,000.

Personal.—Dr. W. W. King, U. S. P. H. and M.-H. Service, formerly of Louisville, has been made chief quarantine officer at San Juan, Porto Rico.——Dr. Ellis Duncan, superintendent of the Louisville City Hospital, after confinement at a jail in Pittsburg because of the shooting of a Mr. Head, following a personal encounter, has returned to the city and has been reinstated in his position of superintendent of the hospital by the board of safety.

LOUISIANA.

Personal.—Dr. Felix Formento, New Orleans, has returned from a four months' tour of Europe.——Dr. Arthur De Roaldes, New Orleans, returned from Paris on *La Lorraine*.

The Health of New Orleans.—The mortality rate for October among whites was at the annual rate of 15.51 per 1000; among negroes, 25.47 per 1000—a mean death rate of 18.17. No death was reported from diphtheria; scarlatina, 6 cases, with no death; typhoid fever, 22 cases, with 8 deaths; no smallpox.

Bequest to Tulane.—The bulk of the estate of the late Alexander C. Hutchinson, amounting to from $500,000 to $1,000,000, is left to the Medical Department of Tulane University, New Orleans. The bequest is intended to increase the efficiency of the college by the erection of a hospital, out-door clinics, a free dispensary, laboratories, etc. He also bequeathed $20,000 each to the Eye, Ear, Nose and Throat Hospital, St. Anne's Asylum, and the House of the Good Shepherd, New Orleans.

MARYLAND.

Measles Closes School.—The public school at Sparrow's Point, a water suburb of Baltimore, has been closed on account of an outbreak of measles.

Personal.—Dr. James L. Bryan, Cambridge, celebrated the fiftieth anniversary of his marriage, December 7. Dr. Bryan was a surgeon during the Mexican War and retired from practice several years ago.——Major Samuel C. De Krafft, surgeon, U. S. Volunteers, has returned from the Philippines and will resume practice in Cambridge.

Baltimore.

Theses of Last Century.—Dr. William Osler has secured from a dealer at Edinburgh 123 Edinburgh theses of American medical graduates, dating from about 1760 to 1816.

Billingslea Bequeaths Books.—Dr. M. B. Billingslea, in his will, leaves his medical books and $50 a year to the library of the Medical and Chirurgical Faculty; also a small annual bequest to the University of Maryland endowment fund.

Additions to Hospital.—The Robert Garrett Hospital, which is maintained by Mrs. Dr. Henry Barton Jacobs for the treatment of children, is having a new dispensary and sun room added. The former will have a waiting room to accommodate 100 and also a special waiting room for contagious cases. The sun room will have a roof of ribbed glass and removable glass walls.

Vital Statistics.—According to the report of the health department to December 13, measles is somewhat on the decrease, 197 cases with 4 deaths being reported in the preceding week. There were 27 deaths from consumption, 19 from pneumonia. A few cases of diphtheria and typhoid fever were reported. The total mortality was 196, a rate per 1,000 of 18.72, being for whites, 16.48, and for colored, 31.20.

Personal.—Dr. Randolph Winslow celebrated the twenty-fifth anniversary of his marriage December 12.——Dr. John B. Schwabka was thrown from his carriage, December 7, by collision with a street car, and badly bruised.——Dr. Percy T. Stansbury has gone to Toronto and thence will proceed to England.——Dr. Hermann Brulle has been placed in charge of the medical agency established by the supervisors of city charities in the Neighborhood House, 1418 Light street.

Visiting Nurses.—The work of the Instructive Visiting Nurses' Association shows the good that this organization has accomplished. During the past year 2,150 visits were made for purposes of simple advice and supervision and 11,675 which required the exercise of professional skill, this being an average of 233 each month for each nurse—each such visit requiring about one hour. At one time there were under care 45 cases of typhoid fever; during the winter months there were more than 240 cases of pneumonia attended by the nurses; over 100 sputum cups were supplied to tuberculosis patients, and in many cases disinfection of rooms was secured.

MASSACHUSETTS.

Personal.—Dr. Philip S. Sumner, Boston, has been elected vice-president of Mount Sinai Hospital.——Dr. George H. Musso, Lynn, recently fell down a flight of stairs, fracturing his skull. No hope is entertained of his recovery.

Tuberculosis Wing Opened.—The new tuberculosis wing of the Boston Pauper Institutions Department, at Long Island, has been formally opened. It will accommodate 51 male patients, and has been erected and equipped at an expense of $40,000.

Staff Elects Officers.—The medical and surgical staff of the North Adams Hospital has elected Dr. Walter S. Carr, president; Dr. Charles W. Wright, secretary, and an advisory board consisting of the president, and Drs. George L. Rice and Frank D. Stafford.

Want Laboratory Again.—At the annual banquet of the Somerville Medical Society, Professor William T. Sedgwick of the Massachusetts Institute of Technology, and Dr. Samuel W. Abbott, secretary of the State Board of Health, urgently recommended the re-establishment of the bacteriologic laboratory by the city of Somerville. Resolutions were adopted by the society appealing to Mayor Glines for its restoration. The mayor sent the appeal to the board of health, supplemented by a personal request of his own. The board of health, at its next meeting, practically ignored the matter.

Hospital Overcrowded.—In their twenty-fifth annual report the Trustees of the Danvers Insane Hospital ask the legislature to appropriate $25,000 in addition to the $50,000 already appropriated, to complete a building for 100 patients. The hospital, built for 450 patients, now contains 1,150. During the year 454 patients were admitted and 438 discharged. The number of cases recorded as recovered at time of discharge was 50. The number of deaths was 114, of whom 33 per cent. were over 70 years of age. In 100 cases death was due to chronic or secondary diseases, depending on underlying conditions, that in many instances were also responsible for the mental condition.

New Hospitals.—The new building of the Carney Hospital, South Boston, was opened November 27. It is to be used exclusively for the out-patient department. The new hospital building at the Massachusetts reformatory, Concord Junction, just completed, gives to the state one of the most thoroughly-built and fully-equipped prison hospitals in the United States.——The new hospital of the Ladies' Union Charitable Society, Lawrence, was formally dedicated November 20.——A site has been purchased in East Boston on which to erect the Italian Catholic Hospital. The lot purchased contains 30,000 square feet and has a brick house on it, which will be used as a temporary hospital.

MICHIGAN.

Personal.—Dr. Roy W. Griswold has returned to Bay City after an absence of several months, due to illness.——Dr. Charles Clark, Detroit, has recently received an appointment as medical missionary in Turkey.

New Poisons.—Prof. Julius O. Schlotterbeck, of the University of Michigan, is reported to have discovered seven new poisons. Three of these poisons are made from the Allegheny

vine which grows on the front porches of many Michigan homes, two from the celandine poppy and two from the Japanese celandine. He has named them protopin, adlumin, adlumidin, stylophin, disphyllin and bacconidin—the seventh being as yet unnamed.

The Most Dangerous Communicable Diseases.—Meningitis was reported present during November, 1902, at 7 places; whooping cough at 27 places; smallpox at 41 places; measles at 48 places; diphtheria at 78 places; typhoid fever at 119 places; scarlet fever at 143 places; and consumption at 240 places. Meningitis was reported at 1 place more; whooping cough at 8 places less; smallpox at 7 places more; measles at 6 places more; diphtheria at 7 places more; typhoid fever at 54 places less; scarlet fever at 5 places less; and consumption at 1 place less, in November, 1902, than in the preceding month.

Comparative Morbidity.—For November, 1902, compared with the preceding month, tonsillitis, influenza, pleuritis, pneumonia, measles, smallpox and meningitis were more prevalent; and typhoid fever, intermittent fever, scarlet fever, diphtheria, cholera morbus, cholera infantum and dysentery less prevalent. For November, 1902, compared with the average for November in the 10 previous years, pleuritis, measles, smallpox and meningitis were more than usually prevalent; and consumption, typhoid fever, intermittent fever, erysipelas, remittent fever, cholera morbus, cholera infantum and dysentery less than usually prevalent.

Michigan Mortality.—There were 2,357 deaths reported to the department of state for the month of November, a decrease of 3 from the preceding month. The rate was 11.7 per 1,000 population, as compared with 11.4 for October. There were 409 deaths of infants under 1 year; 159 deaths of children between 1 and 4, and 703 deaths of persons over 65. Important causes of death were as follows: Tuberculosis, 163; typhoid fever, 65; diphtheria, 51; scarlet fever, 25; measles, 7; whooping cough, 23; pneumonia, 201; diarrhea and enteritis, under 2 years, 57; cancer, 127; accidents and violence, 155. A decrease was shown in the mortality from tuberculosis, typhoid fever, diphtheria and croup, and diarrheal diseases from the preceding month, and an increase in the deaths from scarlet fever, measles, pneumonia and cancer. One death from smallpox was reported.

NEBRASKA.

Personal.—Dr. Alma J. Chapman has resigned as second assistant at the Asylum for the Insane, Hastings, and Dr. S. J. Stewart, Lincoln, has been appointed in her stead.

Insane Hospital Report.—The biennial report of Dr. James L. Greene, superintendent of the State Insane Hospital Asylum, shows a per capita cost of $323.01 for the biennium, which is $62.94 less than the figures in the previous report.

The greatest number were in the hospital on Nov. 14, 1901, when there were 669. On the last day of the fiscal year there were 516. The total under treatment during the biennium was 1,213. The capacity of the old building was 340. The new wing accommodates 150 women, making the capacity of the entire hospital 490. The number of patients has averaged fully 190 more than the normal capacity of the buildings.

NEW YORK.

Personal.—Dr. Cyril A. Fulton, Lyons, has been appointed surgeon to the New York Central Railroad, with jurisdiction from Newark to Weedsport on the New York Central and West Shore and from Lyons to Geneva on the Pennsylvania division.

Will Investigate Alleged Nuisance.—The people of the town of Dewitt, Onondago County, having complained of the manner in which the Farmers' Fertilizer Company conducts its works, Governor Odell has issued an order directing Dr. Daniel Lewis, the commissioner of health, to make investigation of the alleged nuisance and report.

State Provides Antitoxin.—The State Department of Health now furnishes diphtheria antitoxins prepared and tested in its antitoxin laboratory, under the following regulations: It is to be supplied for the treatment or immunization of the following persons: Inmates of state institutions; inmates of other charitable institutions located in New York state and persons residing in the state unable to purchase the remedy. It may be obtained from state institutions, the state department of health at Albany or from the health officers of the city, town, or village.

Batavia Hospital Staff.—The Batavia Hospital Association directors announces the consulting staff as follows: Surgeons, Dr. Roswell Park, Matthew D. Mann, John Parmenter and William W. Potter, Buffalo, and Drs. John M. Lee and Newton C. Colline, Rochester. Physicians, Drs. Charles Cary, Charles G. Stockton, J. H. Pryor, F. W. Hinkel, George T. Mosely and Burt J. Maycock, Buffalo, and Drs. W. S. Ely and William E. Keegan, Rochester. Gynecologists, Drs. C. C. Frederick and S. T. Howell, Buffalo, and Drs. Edwin H. Wolcott and S. R. Snow, Rochester. Neurologists, Drs. William O. Krauss and James W. Putnam, Buffalo, and Drs. Edward B. Angell and P. W. Neefus, Rochester. Ophthalmologists, Drs. E. J. Bissell and Wheelock Rider, Rochester, and Drs. F. Park Lewis, Lucien Howe and Benjamin Grove, Buffalo. Dermatologists, Dr. Ernest Wende, Buffalo, and H. W. Hoyt, Rochester.

New York City.

Personal.—Dr. William M. Leszynsky has been appointed neurologist to the Lebanon Hospital, New York City.——Dr. Israel C. Jones, medical superintendent of the Home for Incurables, was presented by the patients of that institution with a loving cup, in token of their esteem and regard for him.

A Conditional Gift.—The directors of the Manhattan Eye and Ear Hospital have received a communication from an individual who offers $50,000 toward the new hospital, provided that $150,000 additional be raised before Jan. 1, 1904. They accepted the offer and are already making plans to secure the additional amount.

A New Hospital for Tuberculosis.—The committee on the prevention of tuberculosis of the Charity Organization Society has taken steps for the establishment of a hospital for tuberculosis at some point outside the city limits, but readily accessible. Dr. H. M. Biggs stated before the committee that it was safe to estimate that there were at present in this city 30,000 cases of tuberculosis in a stage which allowed of cure.

Presbyterian Hospital Anniversary.—The thirty-fourth anniversary services of the Presbyterian Hospital were held December 6. The annual report shows that 2,976 persons were admitted to beds—380 less than last year. Into the emergency ward 5,761 were admitted, and 23,320 to the out-patient department—899 more than last year. The ambulances responded to 2,575 calls, and 620 persons were treated by the ambulance surgeons. The total number of persons who received the medical and surgical benefits of the hospital was 32,057.

Typhoid Fever.—Although many cases of typhoid fever have appeared in the Borough of Brooklyn, and although, according to the board of health, 25 per cent. more cases of typhoid are reported by physicians now than in former years, when greater laxity prevailed, the disease is steadily decreasing, as is also the mortality percentage. In the eleven months of this year there have been reported in the whole of Greater New York 687 deaths from this disease, as compared with 656 deaths for the same period in 1901. This, when taken in connection with the increased number of cases in Brooklyn, shows that Manhattan and the Bronx have not suffered so severely this year. Again, allowance must be made for increase of population.

Buffalo.

More Barbers Fined.—Three barbers were fined in the Municipal Court for disobeying the health ordinances regulating the conduct of barber shops. They failed to clean their cups, used lump alum and did not sterilize their razors.

Incubator Installed.—An infant incubator outfit has been installed in the Children's Hospital. The board of managers desire to acquaint physicians and all interested in this city and the surrounding country with this fact, and that they are in readiness to care for any infant requiring such treatment. The hospital also is now prepared to receive contagious cases occurring in children under 14 years of age.

Mortality of the City.—The monthly report of the department of health of Buffalo, for November, shows an annual death rate of 12.84 per 1000. The chief causes of death were pulmonary consumption, 39; typhoid fever, 25; debility, 41; apoplexy, 14; meningitis, 14; valvular heart disease, 12; acute bronchitis, 10; pneumonia, 41; appendicitis, 4. The total deaths were 396, as compared to 424 for November, 1901.

Erie County Claims Priority.—In the last number of THE JOURNAL there appeared an editorial on "The Useless Coroner." Erie County, in which Buffalo is located, has dispensed with its coroner system since 1901. It has a medical examiner and assistant medical examiners, who must be graduates of not less than five years from a reputable medical college. They investigate all violent deaths, and perform the autopsies, working in conjunction with the district attorney. New York City will soon follow the example of Buffalo in abolishing the coroner's system there, which is described as serio-comic and antiquated, and will substitute for it a system modeled after that of Erie County.

PENNSYLVANIA.

An alarming epidemic of typhoid fever is reported at Bellefont. About 40 cases have developed within the past two or three weeks. A bacteriologic investigation directed by the local board of health shows that the milk of one of the dairymen is badly polluted with the germ.

Philadelphia.

Dr. Lorenz arrived in Philadelphia, from Baltimore, December 8, and left for New York December 13. While in Philadelphia he was the guest of the Jefferson Medical College. A committee consisting of Dr. James W. Holland, dean; Dr. Joseph S. Neff, medical director of the hospital, and Dr. H. Augustus Wilson, professor of orthopedic surgery, looked after the comfort and entertainment of the visitor. On the evening of the 10th a reception was given at the Hotel Bellevue to Dr. Lorenz and his assistant, Dr. Mueller, by the Medical Club. On the 11th, at 1 p. m., in the amphitheater of the Jefferson Medical College Hospital, before the senior class of the college and many physicians, both of Philadelphia and of distant places, Dr. Lorenz performed four of his usual operations for congenital dislocation of the hip. Dr. Lorenz made a most excellent impression on the medical profession of Philadelphia, and many words of praise were heard for his dexterity and skill in operation, and for his modesty, simplicity, but strength of personal character. Dr. Lorenz was again given a reception on the evening of the 11th in the Library of Jefferson Medical College. He subsequently visited the University of Pennsylvania and Medico-Chirurgical Colleges and other medical institutions, operating a very few times, but spending much of his time in sight-seeing.

GENERAL.

Plague in New York.—The quarantine officers of New York admit that 3 cases of bubonic plague are under treatment on Swinburne Island. The men arrived December 15 from Durban, Natal, South Africa, on the Prince line steamer *Saxon-Prince*. One is convalescent and the other two are under treatment. Precautions have been taken to disinfect the steamer and its contents.

Navy Yard Emergency Service.—At the Brooklyn Navy Yard the facilities for caring for the injured have been markedly improved in the past few weeks. An ambulance is now in service and first-aid supplies are placed conveniently throughout the shops. It is worthy of note that all regular laborers in the yards receive free medical attendance and the use of the Naval Hospital. Among the 3000 men last year there were 541 serious accidents, most of which were broken limbs, cuts and bruises.

CANADA.

Improving Sanitary Conditions in Montreal.—Some time ago the medical health officer of Montreal reported that privy pits were a menace to the health of that city, and the health committee is proceeding rapidly with the abolition of them. Since Alderman Ames has been chairman of the health committee he has worked indefatigably to have these pits abolished. A few months ago there were over five thousand of them in Montreal. By May next he hopes that there will not be more than two thousand. Chicken-pox is said to be very prevalent in certain schools in Montreal. Neither diphtheria nor scarlet fever is spreading to any great extent.

Gymnasium for McGill.—Lord Strathcona will donate $75,000 toward a gymnasium for McGill University. Last week the corporation of McGill University held a meeting, made numerous changes in the matriculation examinations and several appointments to the medical faculty. Dr. A. H. Gordon, gold medallist, 1900, was appointed demonstrator of physiology, vice Dr. Scane, who has left Montreal. Dr. Starkey, the recently-appointed professor of hygiene, was appointed to deliver the university lecture at a date in January, to be selected later. It was also announced that Dr. P. G. Woolley had resigned his governor's fellowship in pathology. There are 420 medical students at McGill.

Treatment of Sick Immigrants.—The immigration department at Ottawa has drawn up regulations for the medical superintendent of immigrants at St. John, N. B., Dr. Ellis, who was recently appointed to deport immigrants arriving in Canada suffering from loathsome, infectious or dangerous diseases. Those immigrants whose destination is the United States, and who have been refused certificates by the American commissioners at the seaports, on the ground that they are physically or mentally defective, will be deported by the order of the medical officer. The department also proposes to appoint local medical officers at Quebec, St. John, N. B., and Halifax, who will act under the superintendent, Dr. Ellis, who will be invested with full authority to carry out the regulations.

Montreal Contagious Diseases Hospital Now Looks Certain.—A special meeting of the committee appointed to consider the civic hospital question for Montreal met last week. The sub-committee appointed to interview the authorities of the general hospitals of the city reported that the managers of Notre Dame Hospital and the managers of the English hospitals would most likely consent to build two hospitals for the care of French and English patients on the conditions that each of them would receive from the city for the purpose of maintenance $10,000. An average of twenty patients a day was to be taken care of for the above sum. Patients exceeding twenty in number to be paid for by the city at the rate of 75c per day for children, and $1 a day for adults. The contract of $10,000 was to last for twenty years.

Hospital for Sick Children, Toronto.—The twenty-seventh annual report of the Hospital for Sick Children, Toronto, was issued December 13. The receipts for the past official year show a growing interest in the work of this hospital. The amount of $11,877.75 was received by donations from the public; and this amount, with $4,264 from pay patients, $17,687 from the Ontario government and municipal grants, $789 student fees and $250 interest, totaled over $34,000, which practically covered the expense of maintenance. During the year 5,373 patients were treated. Of these 749 were in-patients and 4,624 out-patients. Of the in-patients 520 were free patients who were in the hospital 28,131 days, showing that 70 per cent. of the entire number were unable to pay for hospital treatment. There were 128 patients at the beginning of the year, 621 were received during the year, and 627 discharged, leaving in the hospital, Sept. 30, 1902, the end of the official year, 122 patients. The cost of maintenance per patient per day was 88 cents.

FOREIGN.

Sanitation in Cuba.—The government of Cuba is reported as carrying on well the sanitation of Havana and the island in general, but the small villages are drifting back to their former filthy condition, and the authorities seem not to have the power to prevent it.

Comparative Mortality of French and German Armies.—The *Semaine Médicale* has been making a comparative study of the statistics of deaths from disease, accidents and suicides during the last twenty-seven years in the armies of France and Germany. The figures show that the French mortality is about two and a half times more than the German. The annual average is 3,780 men in France (3,276 in 1900), and 1,472 in Germany.

Sydney Watches San Francisco.—The Sydney (Australia) Board of Health is enforcing a careful quarantine against San Francisco, because they can not trust the authorities there. Dr. Ashburton Thompson, president of the board, says:

> We have, as soon as possible, removed all restrictions on vessels arriving from other countries, which have dealt frankly with this matter [bubonic plague]. We have been compelled, in self-defense, to maintain those restrictions against vessels coming from San Francisco, and we don't intend to relax any of the precautionary measures.

Enough Physicians in Ecuador.—In the last consular report of the late Consul-General Thomas Nast, Guayaquil, Ecuador, dated November 12, appears the following:

> As numerous letters are received from parties desirous of practicing medicine in this country, asking if they will be allowed to practice without passing examination in Spanish, I wish to say that the law of this country requires all medical men arriving in the Republic to pass an examination before the medical board in Spanish before permission is granted them to practice. I may add that there are so many doctors here that unless the physician be a specialist, his chances of obtaining much practice is very doubtful; the market is overcrowded.

PARIS LETTER.

Inauguration of New Academy of Medicine.

On November 25 the new Academy of Medicine was formally inaugurated by the President of the French Republic. The Academy of Medicine was established over eighty years ago by Louis XVIII, on Dec. 20, 1820, and was to be composed of the most eminent medical men of France. Questions of hygiene, of legal medicine, the use of vaccine, the examination of new remedies and patent medicines, of mineral waters would be placed in its hands, and this body of physicians would counsel the government as to the best means of preserving the public health. Such are still the attributes of the Academy of Medicine. For a great number of years no specially-constructed building had been placed at their disposal, and they met in turn either in the Louvre, various private hotels, and

lastly in the former chapel of the Charity Hospital. This last-named place was notoriously insufficient, and it was decided to build the present structure, which is situated in the Rue Bonaparte, next to the School of Fine Arts. The amount used in its construction was a little less than $200,000. The most noticeable parts of the building are a vestibule with busts of celebrated physicians and a painting of Pinel, the celebrated alienist, locking up the irons used for insane patients, a large hall for the special meetings of the academy, with a seating capacity of 110, and which is most artistically decorated in the empire style, different committee rooms, a laboratory and institute for vaccination, special rooms for the library, containing 120,000 volumes. At the meeting held on November 25 the president of the academy, who is chosen every year, Dr. Riche, made a discourse in which he showed the importance of the Academy of Medicine, more especially on account of the new sanitary laws, how such measures as had already been carried out to protect children or to prevent too great a spread of alcoholism were due to the academy. He cited the words of the celebrated philosopher, Descartes: "It is of medicine that one should ask the solution of problems which concern the happiness and grandeur of the human race."

Professor Jaccoud, who is perpetual secretary, as the French put it, made a most eloquent speech, in which he showed how continual the progress of medicine was, and his discourse was very much applauded. The minister of public instruction made a speech also, and the meeting came to an end after the president had conferred the cross of Commander of the Legion of Honor on Professor Jaccoud. There are in all 110 members of the academy, which is divided into the following sections: anatomy and physiology, 10; medicine, 13; surgical pathology, 10; therapeutics and natural history, 10; operative surgery, 7; pathology, 7; obstetrics, 7; public hygiene, legal medicine and medical supervision, 10; veterinary medicine, 5; physics and chemistry, 10; pharmacy, 10, and free associates, 10. There are besides 20 national and 20 foreign associates, 100 national correspondents and 25 foreign correspondents.

Cases of Hereditary Locomotor Ataxia by Babinski.

At a recent meeting of the Medical Society of the Hospitals, Dr. Babinski, physician at the Salpetrierê, described two cases of hereditary locomotor ataxia, and remarked they were more frequent than was generally thought. He presented the two patients to the medical society. One was a young woman 22 years old, having Hutchinson's teeth, and presenting at birth anal ulcerations. For two years she has had lancinating pains, the reflex of the pupils is abolished, and the patellar reflex is weaker on the left side than on the right. The father of this young woman contracted syphilis while her mother was pregnant, and infected her. He suffers himself from locomotor ataxia. Dr. Babinski showed another patient who is fifteen years old. There is no pupillar reaction to light, the patellar reflex is abolished, there are urinary disturbances, lymphocytosis of the medullar liquid, specific choroiditis of the left eye, and symptoms of dementia or meningo-encephalitis. The father of this patient has no knee-jerk; there is Argyll-Robertson's sign and gastric disturbances. This patient was not aware he was suffering from tabes, which his physicians had failed to recognize. Dr. Louques described a family in which the father died of progressive general paralysis, the mother and her two daughters presented symptoms of tabes.

Discussion on the Technic of Gastroenterostomy.

Monprofit of Angiers, Hartmann of Paris, Roux of Lausanne, Pauchet of Amiens, discussed gastroenterostomy at the recent Congress of Surgery. Monprofit has performed gastroenterostomy 101 times. He employed the anterior method of Woefler 15 times, Von Hacker's posterior method 75 times, and Roux's Y process 13 times. The first he found defective, and of the two others Roux's seemed to be more perfect. This technic takes more time, however, and should be used when the patients are sufficiently strong to stand an operation lasting an hour. Out of 60 operations that Dr. Hartmann has performed for non-cancerous lesions of the stomach, there has been only a general mortality of 16.5 per cent., and since 1900, out of 37 cases there have been only 4 deaths, or 10.5 per cent. Better results are obtained if the patients are sent to the surgeon before they are completely emaciated, and in this respect the patients sent by Dr. Hayem and Dr. Soupault, who have made a special study of stomach troubles, are in much better condition. Hartmann considers it advisable to always make an accurate diagnosis, as he does not consider it necessary to operate on all forms of chronic dyspepsia, and he prefers to use Von Hacker's method rather than Roux's, as he has never seen any complication arising from what is called a circulus vitiosus.

Dr. Roux does not consider that gastroenterostomy suffices in ulceration of the stomach, as cancer may supervene. Excision should be performed in such cases, and contrary to what Hartmann says, profuse hemorrhage commands immediate intervention. Dr. Pauchet, who is a clever young surgeon of Amiens, has performed 33 operations for non-cancerous disease of the stomach, and has had only two deaths. Diagnosis is not so much an indication for operation as the symptoms observed, such as vomiting, hemorrhage, pain, loss of flesh and mechanical disturbances of the stomach. He gives the preference to Roux's method, when the patient is in good condition.

Correspondence.

Malaria in the New Born.

YELLOW PINE, LA., Dec. 13, 1902.

To the Editor:—In THE JOURNAL of July 19, 1902, I noted an editorial, "Malarial Fever in the New-Born." I had in my practice last summer a case in point much clearer than the one you cite. It was as follows:

Mother, white, aged 35, five other children, had had not very severe chills at intervals through the spring and summer. I had not advised quinin because in this woman's case the drug invariably brought on uterine contractions. When called at about 4 p. m., I learned that the patient had had a chill about ten that morning, and one about the same time on each of the two days immediately preceding. Her temperature was then 102. She was in labor. In about an hour she was delivered of an eight-month boy that weighed only four pounds. The little fellow seemed to do very well till he was 40 hours old. At that time he had a light chill, followed by a considerable rise of temperature. This was repeated the next morning. On the third morning he had a hard chill, was very blue for nearly an hour, with extremities very cold. After this chill the temperature in the groin was 103. I then gave quinin in ½-gr. doses till three grains were given before next chill time. I also let the father rub the child well in quinin and lard. The mother also took quinin freely. There was no recurrence of chill or fever in either child or mother. This child I am satisfied was bitten by mosquitoes, but would that account for a chill as early as the second day after birth? W. S. LAWRENCE.

Particulars of a Lawsuit.

CHICAGO, Dec. 11, 1902.

To the Editor:—Referring to the notice in THE JOURNAL, December 6, concerning suit brought against me for damages, allow me to state the facts: During an operation by Dr. Lemke in the year 1898 his patient had a cerebral embolism, followed by a partial hemiplegia. Shortly after that a lawsuit was commenced against Dr. Lemke, and I was included in the suit, on account of the supposed financial relations between Dr. Lemke and myself. I was not present at the time Dr. Lemke operated, and had nothing to do with the case. The case was tried two weeks ago, and when the plaintiff had completed his evidence, and without the presentation of witnesses and without a defense on the part of Dr. Lemke or myself, the judge instructed the jury to return a verdict in favor of the defendants, thus exonerating Dr. Lemke from any blame whatever in the matter.

Very truly yours, J. B. MURPHY.

Book Notices.

DYNAMIC ASPECTS OF NUTRITION AND HEREDITY. By Frank Horridge. Cloth. Pp. 175. Price, $1.50 net. New York: Wm. Wood & Co. 1902.

The subject of this volume is such a complex and abstruse one that any criticism of a sensible and philosophic handling of it would seem to be almost impossible. The author has undoubtedly given considerable thought to the subject and has brought out his views in a readable form. It is a work that is certainly worth reading, whether one agrees with the author's reasoning or not. The book lacks an index, which is a defect notwithstanding its very moderate size.

THE AMERICAN TEXT-BOOK OF OBSTETRICS. In Two Volumes. Edited by Richard C. Norris, M.D.; Art Editor, Robert L. Dickinson, M.D. Second Edition, Thoroughly Revised and Enlarged. Vols. I and II. Cloth. Pp. 547 and 554 Respectively. Colored and Half-tone Plates. Price, Per Set, $7.00. Philadelphia and London: W. B. Saunders & Co. 1902.

The editor of this excellent work has taken the opportunity of a new edition to have several chapters rewritten. At first thought one would not suppose that a text-book on obstetrics would have to be rewritten every few years to keep up with the times, but such is a fact as regards certain parts. The progress made from researches in chemicobiology, in bacteriology, etc., affects obstetrics almost as much as any other department of medicine. Many of the chapters have been rewritten, so that the work is up to date in every particular. It is fully and beautifully illustrated, and nothing has been omitted that would add to its value as a practical work on obstetrics. The only criticism we feel like making is in regard to its form. We can see no reason for such a book being issued in two volumes. It is not so large but it could be very easily handled in a single book.

A TREATISE ON MASSAGE. Its History, Mode of Application and Effects. Indications and Contraindications. By Douglas Graham, M.D., of Boston, Member of the American Association for the Advancement of Science. Third Edition, Revised, Enlarged and Illustrated. Cloth. Pp. 462. Price, $4.00. Philadelphia and London: J. B. Lippincott Co. 1902.

The author says in his preface, which is in other respects tolerably modest, that the reviewer who thinks that he may find enough in it to save himself the trouble of reading the book will be very much mistaken. This is a general truth—true of this work as of many others. In this third edition changes and alterations have been made, and the many additions include entirely new chapters on some subjects. In most respects the work is well brought up to date. The semi-popular style is noticeable even more perhaps than in former editions. The author's practice of heading each chapter with a quotation, sometimes duly credited, is uncommon in scientific medicine. The work will undoubtedly hold its own among the popular treatises on this subject.

THE PUBLIC AND THE DOCTOR. By a Regular Physician. Cloth. Pp. 149. Price, $0.50. Dallas, Tex.: Published by Dr. B. E. Hadra.

This little work is full of excellent advice addressed in simple language and its circulation among the laity would certainly be of advantage in many respects. We wish, however, that the author had brought it out in a little better form and had been more careful in his proof-reading and had exercised more regard for grammatical construction.

Marriages.

WALTER H. MOORHOUSE, M.D., to Miss Mary Butler, both of London, Ont., December 6.

JOHN E. MCCLUNG, M.D., to Miss Jewel White, both of Corsicana, Texas, December 4.

ERNEST LAPLACE, M.D., to Miss Katherine Borsch, both of Philadelphia, December 16.

RUPERT A. DAVIES, M.D., to Miss Mayme Blackburn, both of Arlington, Neb., December 3.

WILLIAM C. FOGARTY, M.D., to Miss Anna G. Earley, both of Worcester, Mass., December 3.

JAMES T. GRACE, M.D., to Miss Minnie Haughey, both of Kalamazoo, Mich., November 26.

EDGAR ALLEN JONES, M.D., to Miss Mettie C. Davidson, both of Birmingham, Ala., December 16.

SAMUEL C. RED, M.D., Houston, Texas, to Miss Georgia Plunkett of Waco, Texas, December 3.

WILLIS JAY REDFIELD, M.D., Union Neb., to Miss Margaret Arnettie Roe of Omaha, November 18.

JAMES R. ROGERS, M.D., Raleigh, N. C., to Miss Ellen M. Crudup of Kittrell, N. C., December 3.

A. B. HEADLEY, M.D., Cambridge, Ohio, to Miss Maria J. Brown of Beallsville, Ohio, November 9.

WILLIAM PARKS ADAMSON, M.D., Tampa, Fla., to Miss Georgia Robey, at Tampa, December 18.

CHARLES G. HOLLAND, M.D.,, Knoxville, Tenn., to Mrs. Dan Franklin of White Pine, Tenn., December 16.

SAMUEL BEEKMAN ALISON, M.D., Carlowville, Ala., to Miss Emma Knox Lide of Montgomery, Ala., November 27.

WILLIAM ALEXANDER GRAHAM, M.D., Durham, N. C., to Miss Anne Cameron Shepard of Edenton, N. C., December 3.

ALDEN ARTHUR KNIPE, M.D., Iowa City, Iowa, to Mrs. Emily Benson Kennedy of Philadelphia, in New York City, November 29.

Deaths.

Henry C. Pearce, M.D. Starling Medical College, Columbus, Ohio, 1863, for five years lecturer on physiology and histology in that institution; one of the founders, and for 27 years an honored member of the faculty of Columbus Medical College, and for more than thirty-five years surgeon of the Pennsylvania lines, died from paralysis at his home in Urbana, Ohio, December 2, aged 69. At a meeting of the physicians of the city, December 3, a committee was appointed to draft resolutions of respect and regret, and it was decided to attend the funeral in a body.

Joseph C. Stone, M.D. St. Louis and Missouri Medical College, 1854, a veteran of the Crimean and of the Civil War, an honored member of the profession, and a member of Congress in 1876, died suddenly at his home in Burlington, Iowa, from heart disease, December 3, aged 73. At a meeting of his colleagues in the Des Moines County Medical Society it was resolved to attend the funeral in a body. Resolutions expressive of their sorrow and respect were also adopted.

Nathan Y. Leet, M.D. University of Pennsylvania, Philadelphia, 1852, a surgeon in the Union Army during the Civil War, and for a number of years surgeon-in-chief to Moses Taylor Hospital, Scranton, died at his home in that city from nervous exhaustion, December 6, after an illness of one month, aged 72.

John M. Krim, M.D. University of Louisville, 1869, president of the Louisville Clinical Society, who had a large practice among the German population of Louisville, died suddenly at his residence in that city, December 10, from angina pectoris, aged 60. The Louisville Clinical Society acted as escort at the funeral.

George D. Blomer, Jr., M.D. Jefferson Medical College, Philadelphia, 1890, a member of the Philadelphia County Medical Society and of the South Philadelphia Medical Society, died suddenly, December 1, from hemorrhage of the lungs, at at his home in Philadelphia, aged 38.

Martin B. Billingslea, M.D. University of Maryland School of Medicine, Baltimore, 1874, a member of the American Medical Association, died at his residence in Baltimore, December 9, from sepsis and exhaustion following the removal of a carbuncle, aged 54.

Wilbur C. Wright, M.D. University of Michigan, Ann Arbor, 1887, a member of the American Medical Association, and a physician well known throughout the Thumb of Michigan, died at his home in Unionville, from appendicitis, November 29, aged 44.

Robert Terrill, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1875, died at his home near Darksville, Mo., December 2, after a short illness, from septicemia following an apparently insignificant wound of the thumb.

Benjamin M. Ludden, M.D. Ohio Medical College, Cincinnati, 1852, for fifteen years in practice at Indianapolis, died in Brooklyn, N. Y., November 21, from chronic bronchitis, after a long illness, aged 87.

Stanley S. Cornell, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1886, died at his home in Athens, Ont., December 2, aged 37.

Lucien McDowell, M.D. University of Louisville, 1849, a prominent member of the Kentucky State Medical Society, died at his home in Flemingsburg, December 4, from Bright's disease, aged 78.

Edwin C. Evans, M.D. St. Louis and Missouri Medical College, 1854; Jefferson Medical College, Philadelphia, 1858, died at his home in Sedalia, Mo., December 4, after a short illness, aged 74.

Linnaeus B. Anderson, M.D. Medical College of Virginia, Richmond, 1884, formerly of Norfolk, Va., died December 5, at the home of his son, Dr. H. B. Anderson, Noel, Va., aged 78.

Daniel P. Pease, M.D. Bellevue Hospital Medical College, New York, 1882, house physician for several New York hotels, died in Paris, from typhoid fever, December 7, aged 45.

Judson H. Booker, M.D. College of Physicians and Surgeons, Baltimore, 1879, died at his home in Lottsburg, Va., December 1, after a brief illness, aged 46.

Alonzo W. Daum, M.D. Medical College of Indiana, Indianapolis, 1894, died at his home in Connersville, Ind., from stomach trouble, December 3, aged 34.

Robert E. L. Kincaid, M.D. University of Tennessee, Nashville, 1888, died at his home in Bonham, Texas, December 7, after an illness of only five days.

J. Adelard Bazin, M.D. Ecole de Medecine et de Chirurgie, Montreal, 1864, died suddenly at his home in Haverhill, Mass., from acute gastritis, aged 63.

Harlow J. Phelps, M.D. Marion-Sims College of Medicine, St. Louis, 1899, died at Phœnix, Ariz., from hemorrhage, November 25, aged 28.

N. W. Bishop, M.D., died suddenly at his home in Loveland, Ohio, November 19. He was one of the oldest practitioners in Clermont County.

James Windsor Fraser, M.D. University of Pennsylvania, Philadelphia, 1884, died at his residence in Philadelphia, November 27.

Louis E. Krombein, M.D. University of Buffalo, N. Y., 1860, died suddenly at his home in Buffalo, December 7, aged 76.

Robert P. Sweatt, M.D. Galveston (Texas) Medical College, 1873, died recently at his home in Waxahachie, Texas, aged 72.

Samuel K. Crawford, M.D. University of Michigan, Ann Arbor, 1861, died at his home in Chicago, December 1, aged 67.

Henry G. Crump, M.D., died at his home in Pell City, Ala., November 26, from accidental poisoning by chloral hydrate.

Frank L. Hinsdale, M.D. Rush Medical College, Chicago, 1881, of Mill Creek, Utah, died suddenly at Scofield, Utah.

Deaths Abroad.

George Caldwell Stephen, M.D., C.M., McGill University, Montreal, 1887, who afterward went to London and obtained the degrees of L.R.C.P. and L.S.A., in 1889, and that of D.P.H. in 1894, and since that time practiced in London, died at his home in that city, recently.

Dr. W. Rager of Copenhagen, a well-known specialist and writer on orthopedics.——**Dr. N. Feuer,** ex-professor of ophthalmology at Budapest.——**Dr. F. Occhini,** ex-professor of operative medicine at Rome.

State Boards of Registration.

Illinois Examination.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the examination held at Chicago, October 15 to 17, as follows: Written examination; number of subjects, 11; questions, 110; percentage required to pass, 75; number examined, 62; passed, 54; failed, 5; withdrew, 3.

PASSED.

Candidate.	Sch. of Pract.	College.	Year Grad.	Per Cent.
1491	R.	Rush Medical College, Chicago	1902	82
1492	R.	Rush Medical College, Chicago	1902	89
1494	R.	Rush Medical College, Chicago	1902	83
1496	R.	Rush Medical College, Chicago	1902	85
1500	R.	Rush Medical College, Chicago	1902	82
1502	R.	Rush Medical College, Chicago	1902	93
1507	R.	Rush Medical College, Chicago	1902	85
1511	R.	Rush Medical College, Chicago	1902	80
1522	R.	Rush Medical College, Chicago	1901	86
1532	R.	Rush Medical College, Chicago	1895	87
1534	R.	Rush Medical College, Chicago	1900	85
1537	R.	Rush Medical College, Chicago	1902	90
1540	R.	Rush Medical College, Chicago	1902	85
1546	R.	Rush Medical College, Chicago	1902	92
1495	R.	Keokuk (Iowa) Medical College	1902	84
1549	R.	Keokuk (Iowa) Medical College	1902	82
1497	R.	Washington University, St. Louis	1899	87
1498	R.	Medical College of Indiana	1897	80
1499	R.	Northwestern University, Chicago	1902	88
1519	R.	Northwestern University, Chicago	1902	80
1501	R.	Illinois Medical College, Chicago	1902	81
1503	R.	Illinois Medical College, Chicago	1902	77
1516	R.	Illinois Medical College, Chicago	1902	82
1517	R.	Illinois Medical College, Chicago	1902	80
1505	R.	Harvey Medical College, Chicago	1902	84
1506	R.	College of Phys. and Surgs., Chicago	1887	90
1520	R.	College of Phys. and Surgs., Chicago	1902	81
1526	R.	College of Phys. and Surgs., Chicago	1901	82
1529	R.	College of Phys. and Surgs., Chicago	1902	90
1530	R.	College of Phys. and Surgs., Chicago	1902	81
1548	R.	College of Phys. and Surgs., Chicago	1902	88
1550	R.	College of Phys. and Surgs., Chicago	1902	83
1508	E.	National Medical University, Chicago	1902	84
1521	R.	College of Phys. and Surgs., Baltimore	1892	82
1541	R.	College of Phys. and Surgs., Baltimore	1902	78
1513	E.	National University, Chicago	1902	86
1509	R.	Georgetown University Medical College	1901	86
1510	R.	Starling Medical College, Columbus	1898	77
1512	R.	Imperial University of Kazan, Russia	1897	85
1518	H.	Hahnemann Medical College, Chicago	1899	83
1542	H.	Hahnemann Medical College, Chicago	1902	83
1523	E.	Eclectic Medical Institute, Cincinnati	1902	81
1524	R.	Detroit College of Medicine	1900	80
1525	R.	Jefferson Medical College, Philadelphia	1900	81
1527	R.	Amer. Med. Missionary Coll., Chicago	1902	83
1528	R.	Amer. Med. Missionary Coll., Chicago	1902	85
1515	R.	Amer. Med. Missionary Coll., Chicago	1901	85
1531	R.	Creighton Medical College, Omaha	1901	85
1533	R.	Milwaukee Medical College	1902	88
1538	R.	Johns Hopkins University	1901	86
1539	R.	University of Toronto	1895	86
1543	R.	Western Reserve University	1902	82
1545	E.	Bennett Medical College	1900	78
1551	R.	Miami Medical College	1900	84

FAILED.

1493	R.	College of Phys. and Surgs., Chicago	1902	61
1504	H.	Hahnemann Medical College, Chicago	1899	72
1514	R.	Barnes Medical College, St. Louis	1902	64
1535	P.-M.	College of Med. and Surg., Chicago	1902	73
1536	R.	Illinois Medical College, Chicago	1900	59

WITHDREW FROM EXAMINATION.

1528½	R.	Keokuk (Iowa) Medical College	1902	..
1544	R.	Illinois Medical College, Chicago	1903	..
1547	H.	Hahnemann Medical College, Chicago	1902	..

Iowa Report.—The Iowa State Board of Medical Examiners, reports, by Dr. J. F. Kennedy, secretary, the examination held at Des Moines, in October: Number of subjects examined in, 8; total questions, 80; percentage required to pass, 75; written examination; total number examined, 30; passed, 23; failed, 7.

PASSED.

Candidate.	Sch. of Pract.	College.	Year Grad.	Per Cent.
776	E.	American Med. Coll., St. Louis	1896	76.0
763	H.	Chicago Hom. Medical College	1902	80.0
741	R.	College of Phys. and Surgs., Chicago.	1902	80.0
742	R.	College of Phys. and Surgs., Chicago.	1902	78.0
744	R.	College of Phys. and Surgs., Chicago.	1902	75.0
751	R.	College of Phys. and Surgs., Chicago.	1902	80.0
760	R.	College of Phys. and Surgs., Chicago.	1901	85.0
761	R.	College of Phys. and Surgs., Chicago.	1902	93.0
756	R.	College of P. and S., New York City.	1870	81.0
753	R.	Detroit College of Medicine	1902	75.0
759	R.	Jefferson Medical College, Phila.	1902	81.0
740	R.	Creighton Medical College, Omaha	1902	84.0
745	R.	Keokuk Medical College, Iowa	1902	76.0
746	R.	Medical College of Ohio, Cincinnati.	1882	87.0
747	R.	Rush Medical College	1902	86.0
748	R.	Rush Medical College	1902	92.0
749	R.	Rush Medical College	1902	85.0
755	R.	Rush Medical College	1901	87.0
757	R.	Rush Medical College	1900	90.0
758	R.	Rush Medical College	1902	87.0
762	R.	Rush Medical College	1902	90.0
754	R.	St. Louis Medical College	1902	78.0
752	R.	Woman's Medical College, Phila.	1901	86.0

FAILED.

767	O.	American School of Osteopathy	1901	42.0
168	O.	American School of Osteopathy	1901	57.0
750	R.	Barnes Medical College, St. Louis	1900	67.0
764	H.	Dunham Medical College, Chicago	1901	70.0
769	R.	Meharry Med. Coll., Nashville	1895	73.0
765	P.	Physiomed. Coll. of Ind., Indianapolis	1878	69.0
743	R.	St. Louis College of Phys. and Surgs.	1901	69.0

Medical Organization.

The Work Before Us.

The *St. Paul Medical Journal* has the following clear editorial on this important subject:

"The coming year will be a most important one for the medical profession of the United States, and we of Minnesota must see to it that our share of the responsibility is not neglected and that the duty which we owe to the rest of the profession of the country is properly performed.

"The Minnesota State Medical Society, at its annual meeting in June, adopted the general plan of reorganization, without a dissenting voice, and thus took the first step, but the real work is still to come. The county societies must work out the details, and where there are no county societies such must be organized. Some of the county societies have hitherto had little more than a nominal existence, and these must be strengthened, and every

man who is eligible to membership must be personally solicited to join. In some of the more thinly-settled portions of the state it will be necessary for two or more adjacent counties to unite, and where possible a hyphenated name combining the names of the counties should be selected. One thing must be carefully borne in mind by those who take up this work—personalities must not be considered as among the qualifications for membership in the county society. Since admission to the state society, as well as admission to the American Medical Association, can only be obtained through membership in the county organization, such membership is a right which every regular practitioner of non-sectarian medicine can demand, unless good cause can be shown why he is not entitled to it. Grossly unprofessional conduct should be the only ground for exclusion.

"A man who does not belong to his county society must belong to one of two classes: either he is one of those who has voluntarily decided to isolate himself from his fellow practitioners and prefers to lead a selfish, solitary existence, or else he must be considered to be under a cloud on account of his professional misdeeds and unfit for association with his professional neighbors. According to our way of looking at it, the best and fairest plan is to admit to the county society even those who are suspected of being a little loose in their professional conduct, unless their sins have been very open and very flagrant, and by example and influence show them the error of their ways. In this way many a man who is perhaps just on the border line of professional misconduct may be saved and kept straight, who would otherwise go entirely wrong. If, after a few months, it becomes evident that a mistake has been made and that the individual in question is openly violating the rules of professional conduct, it will be an easy matter to prefer charges against him and have him expelled in proper form. He can not then claim that he erred through ignorance or that he was not given a chance. If every county does its duty in this matter, we should have a membership of between twelve and fifteen hundred in the state medical society when it comes together next June; and if every state does the same thing we may expect that the membership of the American Medical Association will jump from eleven thousand to fifty thousand in a single year. It is surely unnecessary to dwell upon the advantages which would result from this complete federation of the American medical profession; they must be apparent to all who will give the matter any thought.

"Let us all join hands and work together for the good of all."

Maury County (Tenn.) Medical Society.

Pursuant to a call of Dr. G. Chris Savage, Nashville, chairman of the committee on organization of the Medical Society of the State of Tennessee, a number of physicians of Maury County assembled in Columbia, December 1, for the purpose of organizing a county medical society. Dr. Hazle Padgett was unanimously chosen temporary chairman and Dr. Otey J. Porter, secretary, both of Columbia. A committee was appointed, consisting of Drs. William B. Harrison, Robert Pillow and Charles A. F. Forgey, all of Columbia, to draft a constitution and by-laws for the society, to report December 15.

Chippewa County (Mich.) Medical Society.

Dr. Beverly D. Harison presided over the meeting of this society in Sault Ste. Marie, December 5, at which organization was effected. Dr. Theodore A. Felch, Ishpeming, councilor for the state medical society, was present and explained the plan of organization, which proposes to include Luce and Mackinac counties. The following temporary officers were elected to serve until the regular election to be held in Sault Ste. Marie, January 1: President, Dr. John R. Bailey, Mackinac Island; vice-president, Dr. Charles J. Ennis, Sault Ste. Marie; secretary, Dr. W. G. Rice, Sault Ste. Marie, and treasurer, Dr. Alexander MacDonald, Sault Ste. Marie.

Butler County (Ohio) Medical Society.

This society met in Hamilton, December 3, for the purpose of passing on the constitution and by-laws suggested for county societies by the American Medical Association. The report of the committee was made and the constitution and by-laws adopted. Dr. Brooks F. Beebe, Cincinnati, the councilor for the district, was present and explained the new plan of organization. The following officers were elected: Dr. Thomas A. Dickey, Middletown, president; Drs. R. Harvey Cook, Oxford, James Macready, Monroe, and August Schumacher, Hamilton, vice-presidents; Dr. John A. Grafft, Hamilton, secretary, and Dr. James E. Torrence, Hamilton, treasurer.

Monongalia County (W. Va.) Medical Society.

Acting on the recommendation of the West Virginia State Medical Association in regard to the formation of county societies, physicians of Monongalia County met in Morgantown, November 18, and effected a temporary organization, with Dr. William M. Sivey, temporary chairman, and Dr. Richard H. Edmundson, secretary, both of Morgantown. The by-laws of the state medical association governing county societies were read and a permanent organization formed. Dr. Spencer S. Wade was elected president; Dr. William M. Sivey, secretary, and Dr. Haught, treasurer. Drs. Brock, Haught and Sivey were constituted a committee on constitution and by-laws, to report December 2.

Manila Medical Society.

We have been favored by Dr. Richard P. Strong, secretary, with a copy of the "Constitution and By-laws of the Manila Medical Society," just organized. The constitution provides for active, associate and honorary members, and guests. Meetings are to be held monthly. Most of the principles contained in the constitutions and by-laws for state and county societies, prepared by the Committee on Organization of the American Medical Association, are included. Five councilors are provided for, each to serve five years. The functions of the council are, in part, those of a board of censors for county societies, and, in part, those of the council and house of delegates for state societies. It asks to be affiliated with the American Medical Association.

Societies.

COMING MEETING.

Western Surgical and Gynecological Association, St. Joseph, Mo., Dec. 29 and 30, 1902.

North Dakota State Medical Society.—The annual meeting of the society will be held at Bismarck, May 21 and 22, 1903.

Greene County (Ohio) Medical Society.—Dr. Thaddeus A. Reamy, Cincinnati, was the guest of this society at its regular meeting held in Xenia, December 4, and delivered an address on "The Treatment of Abortion."

Calhoun County (Mich.) Medical Society.—The twenty-sixth annual meeting of this society was held at Marshall, December 9. Dr. Louis S. Joy, Marshall, was elected president; Dr. James H. Reed, Battle Creek, vice-president, and Dr. William H. Haughey, Battle Creek, secretary and treasurer.

New York Neurological Society.—The following officers have been elected: President, Dr. Pearce Bailey; vice-presidents, Drs. J. Arthur Booth and Frederick Peterson; recording secretary, Dr. Bronislaus Onuf; corresponding secretary, Dr. Frank K. Hallock, and treasurer, Dr. Graeme M. Hammond.

Northwest Arkansas Medical Society.—This society held its annual meeting at Springdale, December 2. An effort is being made to reorganize this society as "The Medical Society of the Tenth Judicial District of the State of Arkansas." Dr. E. G. McCormack, Prairie Grove, was elected president; Dr. Buchanan Hatchett, Fort Smith, vice-president, and Dr. Frank B. Young, Springdale, secretary and treasurer.

Minnesota Valley Medical Society.—The twenty-third annual convention of this society was held in Mankato, Minn., December 4, Dr. William J. Mayo, Rochester, in the chair. The following officers were elected: Dr. William Jacoby, Mankato, president; Drs. Michael Sullivan, Adrian, Louis A. Fritsche, New Ulm, and Archer C. Jacobs, Elmore, vice-presidents; Dr. Edwin D. Steel, Mankato, secretary, and Dr. George F. Merritt, St. Peter, treasurer. The next meeting will be held at St. Peter, in May, 1903.

University of Michigan Clinical Society.—The clinical staff of the University Hospital, Ann Arbor, have formed a

society. The first meeting was held November 28. Dr. Charles B. Nancrede was elected president, and Dr. Joshua G. R. Manwaring, secretary. Dr. George Dock reported a case of amebic dysentery, with abscess of the liver; Dr. Reuben Peterson showed a patient with an inverted uterus; Dr. Flemming Carrow exhibited a patient with interstitial keratitis, and Dr. E. A. Willis a case of tuberculosis of the pharynx.

NEW YORK ACADEMY OF MEDICINE.

Regular Meetings, held Nov. 20 and Dec. 4, 1902.

The President, Dr. Robert F. Weir, in the Chair.

The November 20 Meeting.

The Harder Variety of Hodgkin's Disease.

DR. WILLIAM S. HALSTED, Baltimore, said that the chief symptoms were enlargement of the lymph glands, and usually also of the spleen, with progressive anemia. In about one-third of the cases the liver is involved. The disease usually begins in the cervical glands. Fever had been noted by most writers, and had been present in all of the 11 cases observed by Dr. Halsted. If the cervical glands on one side only are enlarged, it will usually be impossible to make a diagnosis from inspection alone. The enlarged glands are often the size of a Madeira nut, and their bloodlessness is characteristic. There is usually also a suggestion of translucency. Eight of the 11 cases observed at the Johns Hopkins Hospital had been admitted since 1899, 4 of them this year. Ten of the patients were whites; 8 were males. Only one developed tuberculosis. Of the 8 operative cases 7 were known to be living and apparently in good health; one could not be followed. Tuberculin had been given to all but one of the cases. Dr. Halsted spoke in the highest terms of the microscopic work on Hodgkin's disease done by Dr. Dorothy Reed, one of Dr. Welch's pupils.

Although literature shows 104 cases reported cured, Dr. Halsted said there is no evidence to show that a single one has been cured.

A Rare Affection of the Lymph Glands.

Dr. Halsted then reported in detail a remarkable case, which it was thought might prove to be a new affection of the lymph glands. The patient, an intelligent German, 33 years of age, had been under observation from February to August, 1902. He had been well until eight years ago, when a painful, tender swelling developed high up in the right axilla. The growth was removed at the clinic of Mikulicz, but the pain soon returned and continued ever since. For two years there had been a swelling above the right clavicle, which sometimes became softer, at which times the pain was less acute. The skin over the clavicle and in the supra- and infra-clavicular fossæ was red and thin, and the pectoral muscle appeared to be infiltrated by inflammatory products. In the axilla was a mass similar to the one over the clavicle. Tuberculin was injected on three occasions without producing reaction. Professor Mikulicz had sent an abstract of the man's history, together with the statement that he had not been able to satisfy himself as to the exact nature of this curious case. On March 13 he was operated on, and it was found that the axilla was nearly filled with a myxomatous material; there was a pathologic fracture of the clavicle and a portion of this bone had been destroyed. The axillary vein was thrombosed and there was much connective tissue about the veins of the brachial plexus. Portions of the tissue removed were inoculated into the femoral vein of a dog, and into a cavity made in one femur, with a negative result. On May 9 a supplementary operation was done, and it was found that the clavicle was considerably larger, but the disease had apparently not advanced. When last seen, Sept. 15, 1902, there was no pain in the wound and no evidence of extension of the disease.

Dr. Halsted said he felt sure that this case represented a peculiar inflammatory affection of the lymphatic glands. Although the microscopic appearances of the tissue removed closely resembled those of Hodgkin's disease, the naked-eye appearances were very different.

DISCUSSION.

DR. JOSEPH SAILER, Philadelphia, pointed out the difficulty of drawing positive conclusions in the present state of our knowledge. One should be cautious about assuming that the tubercle bacilli found in the glands bear a relation to pseudo-leukemia, 1, because these bacilli have been found in other forms of tumor, e. g., carcinoma and sarcoma, and 2, because the lymph glands are specially susceptible to infection by this bacillus. Cultures were made in one of his four cases, and a bacillus was found resembling the tubercle bacillus. The speaker was of the opinion that there were various conditions characterized by enlargement of the lymph glands, due to various etiologic factors, and that some of these conditions would, in the future, be successfully shown to be due to infections with the tubercle bacillus.

DR. H. M. BIGGS expressed the opinion that Hodgkin's disease is an infection, most probably tuberculous, and that several types have been included under this one name.

DR. ARPAD G. GERSTER also firmly believed that Hodgkin's disease was of the nature of an infection, and that the wide variations in the type of the disease explained the contradictory statements made with regard to the effects of treatment.

DRS. B. F. CURTIS and JAMES EWING also discussed the subject.

The December 4 Meeting.

The Need of a Radical Reform in the Teaching of Medicine to Senior Students.

DR. WILLIAM OSLER, professor of medicine in the Johns Hopkins University, delivered an interesting discourse on this topic to a large audience, which was notable for the many eminent medical teachers and academicians present. Dr. Osler said that the work of the first and second years in the medical school had been made exceedingly practical in recent years, but, in his opinion, there should be a change in the conception of how medicine should be taught, and the senior student should be started out at once on his road of life. In the ideal course the student really starts as a practitioner, and observer of disordered machines, with whose structure and orderly functions he has already been made familiar. It is a safe rule not to have any teaching except with a patient as a text, and care should be taken not to teach the student too much; rather give him good methods and a proper point of view, and the other things needful will be gradually added thereto.

A most important reform is demanded in the hospital. In the interest of the medical student, the profession and the public, the hospital authorities should be asked for much greater facilities than are at present enjoyed by the students at the majority of our medical schools. The hospital physician is almost sure to become slovenly unless he is engaged in teaching and is himself taught by his house physicians. The objection is often made that the patients dislike having students in the wards, but this he characterized as entirely fanciful. His own experience in this respect had been exactly the reverse, and it had not been a small one, comprising as it did twenty-five years of ward teaching. With ordinary discretion, and actuated by kindly feelings toward his patients the hospital physician will not experience the slightest difficulty in this respect. Again, in these days when the house staff is so overworked, it is almost impossible to conduct a hospital on modern lines without the help of students in much of the routine work.

At the Johns Hopkins the third-year student learns his medicine only in the out-patient department. The class is divided into three groups. Dr. Osler meets the class in the dispensary, in a specially-built class room, on three mornings each week. During the first part of the year they are taught physical diagnosis and history taking; later they are divided into small groups, and assigned to dispensary cases under the supervision of the out-patient staff. They are allowed to follow their patients, if need be, into the hospital wards, and are encouraged to report on them at stated intervals. There are no systematic lectures on the theory of medicine. The students are given simple ward instruction by him three mornings each week, and Saturday the work of the week is reviewed in the amphitheater, with the presentation of charts and records of important cases, together with the morbid anatomy specimens for the week. In

addition, he meets the fourth-year students one evening each week, and has a quiet talk with them over the clinical events of the week, especially the mistakes and failures, both their own and his. In this way the distance between student and teacher is lessened. While Dr. Osler was not theoretically opposed to systematic didactic lectures, and believed that in some instances the inspiration of a Trousseau would be valuable to the student, he was of the opinion that, for the most part, the ordinary systematic didactic lectures were no longer necessary. At stated intervals the assistants should hold recitations. He desired to plead most earnestly that the same privileges might be enjoyed by medical students in the other medical centers of the country.

DISCUSSION.

PROF. H. L. BURRELL of Harvard University said that while educators generally had watched with the keenest interest the doings at Johns Hopkins University, the conditions there, especially the small classes, made it possible for them to carry out plans of instruction which would not be feasible in other cities. He then described some reforms made at Harvard. Last June the curriculum had been so arranged as to give a minimum of required work and a maximum of elective work. The first year and a half is devoted to anatomy, histology, physiology, physiologic and pathologic chemistry, pathology and bacteriology; the second year and a half is devoted to medicine, surgery, obstetrics, hygiene, pharmacology, dermatology, gynecology, pediatrics, neurology, syphilis, ophthalmology, otology, laryngology, legal medicine and psychiatry. In the fourth year the student is allowed to devote his one thousand hours of time to any subject that he may elect, and in making this choice he is advised by a special committee. He hoped in time Harvard would add still other reforms. One would be to require all students to serve during the fourth year as clinical clerks and surgical dressers in the wards and outpatient departments of a hospital, the work being so arranged that in the first six months practically all of the student's time would be so occupied, while in the last half year it would take either his mornings or afternoons. It is well to encourage research work among the fourth-year students because of the excellent training it gives them. A third method of improving medical teaching is by making section work a prominent feature. To abolish the lecture seemed to him a great mistake.

PROF. ALEXANDER MCPHEDRAN of the University of Toronto insisted that we should ever keep before the public mind the fact that the function of the hospital is three-fold, viz.: 1, to care for the patients; 2, to train nurses for the care of people outside who can not go to the hospital, and 3, to train medical students to care for the poor in various parts of the country who can not come to the hospital. He had found Dr. Osler's plan feasible when his classes numbered fifty or sixty students, but now that there were a hundred or more students it was exceedingly difficult to give them the needed practical instruction. He had found that very few patients, indeed, in hospital objected to the students working there; after all, the patients usually acted as they were expected to do, and where it was the custom for students to be instructed in the hospital the patients rarely objected—indeed, they sometimes thought they were not treated rightly if not given a full share of the students' attention. The law with regard to obtaining a license to practice medicine in Toronto made it necessary for them to continue the didactic lectures, but he believed the fewer of these lectures the better.

DR. E. G. JANEWAY described the situation in New York City, and pointed out that it would be impracticable to turn the large number of students into the wards of the hospitals, and that, moreover, didactic lectures and other modifications of the curriculum are demanded because the students are not specially selected by virtue of a specially liberal preliminary education as at the Johns Hopkins University. There is much room for improvement here in the matter of the hospitals, even the public ones, giving better facilities to students.

DR. W. B. JAMES of the College of Physicians and Surgeons said that, in the matter of the didactic lecture, every teacher should be a law unto himself. In his opinion the amphitheater clinic still held an important place. He was not at all a believer in electives for the fourth-year students; the whole four years should be devoted to giving a symmetrical view of the entire field of medicine, with all its specialties.

DR. W. GILMAN THOMPSON said that it was possible to greatly overdo laboratory instruction. The aim of a medical school should be to graduate well-balanced practitioners of medicine so far as this can be done in a reasonable time. A great deal depends on whether or not the students have received a college education, on the size of the classes, the relation of the school to the hospital, and last, but not least, what sort of questions the state examining boards would ask of those applying for licenses to practice medicine. He did not favor the extensive use of didactic lectures, nevertheless they are of service in teaching certain general principles, and in filling in the gaps left by bedside instruction. It is impossible to demonstrate all the symptoms and signs of a disease on a particular case—indeed, there are many limitations to such instruction, and it is impossible to so fully control the clinical material as to present the different subjects in accordance with a prearranged system.

DR. E. B. CRAGIN spoke of the difficulties of teaching practical obstetrics to large classes, and said that, having a class of 200, he had decided that it was wiser to divide them up into groups of six and allow each section to live in the maternity hospital for two weeks than to try to teach them all the year by lectures on the theory.

DR. ELLSWORTH ELIOT spoke of the value of didactic lectures to students of surgery in preventing them from becoming confused in studying a subject that was changing so rapidly.

DR. OSLER, in closing the discussion, said that he pleaded for better facilities for utilizing for students the immense amount of clinical material that annually went to waste, and for the closer affiliation of the patient and student. What was wanted was an intimate contact of the student and teacher.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirtieth Annual Meeting, held in New Orleans, Dec. 8 to 12, 1902.

President, Dr. Henry D. Holton, Brattleboro, Vt., in the Chair.

The opening address of welcome was delivered by Rev. Max Heller of New Orleans.

After the transaction of routine business, the reading of papers and reports was begun.

Report of Committee on Disposal of Refuse Materials.

This was read by Dr. W. C. Woodward of Washington, D. C., and stated that the present condition of the art of disposal of city refuse had not advanced materially in the last year. Many of the largest cities in America have reduction plans for the extraction of the grease with more or less success. The latest, and in some parts of the country still the most common, method of disposal, namely, that of feeding kitchen garbage to swine, is now earnestly advocated by a prominent health officer, although most ardently opposed by most sanitarians for many years. It is advocated because under many conditions it is not unhealthful if properly conducted, and it is more economical in smaller communities than any other method. The Berlin proposition of converting kitchen garbage into compost has not yet been sufficiently tried. The results with this method in this country do not seem promising, except where the soil is very barren and the cost of labor very low.

Report of the Committee on Animal Diseases and Animal Food.

This report, read by Dr. M. P. Ravenel, Philadelphia, made reference to the experimental work of Ravenel, Mohler, De Jong, Delepine, Orth, Stenstrohm, Fibiger and Jansen, Max Wolff, Nocard, Arloing, Behring, and a number of other investigators. These investigations were sufficiently numerous and harmonious in the results to establish the following conclusions:

1. The bacillus tuberculosis found in human tuberculosis differed greatly in its pathogenic powers as obtained from different cases.

2. Two types of tubercle bacilli might be obtained from man, namely, one which was somewhat difficult to cultivate, which grew slowly, and the bacilli of which are short, stubby, and free from beading—the so-called bovine type; and the second, which was quite easily cultivated, grew rapidly, was longer, thinner, and inclined to show beading and curved forms—the so-called human type.
3. Virulent cultures might be obtained from both of these types, which, when inoculated, according to the methods used by Koch, and on the species of animals specified by him, produced progressive and fatal tuberculosis.
4. The contention that human tuberculosis could not be transmitted to asses, sheep, goats, and especially to cattle, had been completely disproved.
5. Koch's failure to produce tuberculosis in the animals named with bacilli from human sources was probably due to the use of bacilli of low pathogenic powers.

The report then discussed at length investigations as to the transmission of bovine tuberculosis to man. The results of investigations showed:

1. While the bacilli of human tuberculosis were found of feeble virulence for cattle, there was a considerable proportion of cases in which these bacilli were virulent for cattle as well as other animals.
2. Bacilli of both the bovine and human type had been obtained from cases of human tuberculosis.
3. Bovine bacilli introduced into the human tissues by accidental inoculation, if left, multiplied, and produced disease at the point of inoculation, and even recovered after a considerable time with their vitality and virulence unimpaired.
4. Various statistical studies indicated that a considerable proportion of cases of human tuberculosis, and particularly with children, originated from the ingestion of the bacilli with contaminated food.

It appeared to the committee, therefore, that the conclusions of Koch, announced at the British Congress of Tuberculosis, to the effect that bovine and human tuberculosis were different; that human tuberculosis could not be conveyed to cattle, and that man was insusceptible to bovine tuberculosis were disproved, and should no longer have weight with sanitarians. The evidence adduced indicated that greater care should be exercised to prevent infection with bovine tuberculosis, and particularly to guard children from tuberculous milk.

Officers for the Ensuing Year.

The following officers were elected: President, Dr. Walter Wyman, Washington, D. C.; first vice-president, Dr. C. P. Wilkinson, New Orleans; second vice-president, Dr. John L. Leal, Paterson, N. J.; secretary, Dr. Charles O. Probst, Columbus, Ohio; treasurer, Dr. Frank W. Wright, New Haven, Conn.

Officers of the Bacteriological and Chemical Section.

These were elected as follows: Chairman, Dr. H. L. Russell, Madison, Wis.; vice-chairman, Dr. V. A. Moore, Ithaca, New York; secretary, Mr. G. C. Whipple, Brooklyn, New York; recorder, Dr. Henry D. Pease, Albany, New York.

The next meeting will be held at Washington, D. C., in 1903.

(To be continued.)

SANITARY CONFERENCE OF THE AMERICAN REPUBLICS.

Meeting held in Washington, D. C., December 2 to 6, 1902.
(Concluded from page 1543.)

The Mosquito and Yellow Fever.

CHARLES J. FINLAY, M.D., chief sanitary officer of Cuba, answered the question: "Is the Mosquito the Only Agent Through Which Yellow Fever Is Transmitted?" He stated that there can be no cause for considering fomites as a factor in the propagation of yellow fever and that the mosquito appears to be the only insect capable of transmitting yellow fever infection and, furthermore, that the only mosquito which is a natural transmitter of the disease is the *Stegomyia fasciata*, in which he observed certain peculiarities as to the laying of ova and the readiness of renewing its bites whenever the digestion of a previous meal had been completed. On investigation this particular mosquito was found to fulfill all the conditions which have been postulated in the author's theory, and investigations on the human subject have further borne out his hypothesis. He explains that the power of transmitting yellow fever, as exhibited by the stegomyia, should not be considered as an additional functional manifestation on the part of this insect, but as a deficiency in the germicidal power of its venom as compared with that displayed by the venom of other blood-sucking insects. The yellow fever germ often passes unharmed into the stomach of the stegomyia and continues therein the mosquito phase of its existence, while in the case of any other blood-sucking insect it would have been destroyed on inhibition by the venom. So long as the true germ of yellow fever remains unknown, this hypothesis can not be verified under the microscope, but the principle seems to have been confirmed in the case of the malarial parasite which passed unscathed through the buccal cavity of the anopheles and continued to develop in the stomach, while in other species of gnats it reached the stomach already doomed to degeneration and death. The author concluded by saying that no valid reason has been brought forward thus far for supposing that any other insect or any other species of mosquito except the *Stegomyia fasciata* is capable of transmitting yellow fever.

Uncinariasis.

DR. CHARLES WARDELL STILES had made extensive studies of this disease for the purpose of finding a remedy. He explained that the uncinaria produces a condition closely resembling the persistent malaria for which it is almost invariably mistaken. Among other symptoms of the disease the author stated that it created an abnormal and peculiar appetite and suggested that possibly the dirt-eating and pickle-eating habits noticed in some parts of the South might be due to the presence of the hookworm. He urged that the information concerning the malady be spread broadcast, and predicted that under this propaganda a gradual and noticeable improvement would take place in the condition of the "poor whites" of the South.

International Quarantine.

THE COMMISSION appointed at the meeting held in Mexico in January of this year made an exhaustive report regarding the quarantine of certain diseases. It presented resolutions providing that, with reference to yellow fever, the detention of vessels at the port of arrival should not exceed a period of twelve hours for a visit of inspection, counting from the time of the arrival, and of a period not to exceed twenty-four hours for disinfection after the inspection of the passengers and crew.

In regard to bubonic plague a similar resolution was proconsist of a sanitary medical inspection in order to obtain knowledge that there are no cholera patients on board the vessel; that there are no persons suspected of suffering from cholera, because some patients have been found suffering from vomiting and diarrhea, in which case it would be necessary to make a bacteriologic examination of the excreta; in placing suspected passengers under vigilance and isolation for any cases that are taken ill, and finally in the isolation of affected patients until entirely recovered.

In regard to bubonic plague a similar resolution was pro posed, with this addition: that the disinfection of passengers, after the visit of inspection of the vessel is over and when the passengers are already out of the vessel, should be for affected persons until the disease has entirely disappeared, and for suspected persons until the termination of bacteriologic examination. The period of quarantine or vigilance will be for seven days in case of persons suspected of plague infection, and when a case of this disease is found during the period of detention for the purpose of disinfection, that period should be extended for a time sufficient to carry out the destruction of the rats.

Agents of Infection.

DR. ARTHUR R. REYNOLDS, Health Commissioner of Chicago, offered the following preamble and resolution, which places more or less responsibility on the animal and vegetable source of infection:

Bubonic plague and other diseases are spread by rats, mice and other lower animals, which to a great extent find sustenance in animal and vegetable kitchen wastes, commonly called garbage; therefore, be it

Resolved, That all organic waste or garbage should be kept separately on the premises until it can be removed unmixed with anything else and destroyed.

Election of Officers.

The officers nominated by the Committee on Organization and mentioned in the report of the committee on page 1544 were declared duly elected.

Prophylaxis of Yellow Fever.

DR. GUITERAS, Cuba, offered the following resolution regarding the mosquito as a factor in the communication of yellow fever:

The measures of prophylaxis against yellow fever shall be based on the fact that up to the present time the bite of certain mosquitoes is the only proven natural means of propagation of yellow fever; that the governments represented in this conference approve the measures employed in Havana for the prevention of the spread of the disease "on land," for the isolation of cases, and the fumigation of buildings, it being understood that said measures are based on the principles enunciated in the first part of this resolution; that the prevention of the importation of this disease by vessels wherein persons actually infected are found must conform to the methods employed on land, yet there are questions concerning the importation of infected mosquitoes that require further study before any decided modification of the quarantine laws can be recommended.

International Sanitary Bureau.

The conference adopted an extended resolution pertaining to the work of the International Sanitary Bureau whose permanent headquarters are to be in Washington. The resolution makes it the duty of the bureau:

To urge all the parties represented in the conference to promptly and regularly transmit to the bureau all data of every character relative to the sanitary condition of their respective ports and territories; to furnish the bureau every opportunity and aid for thorough, careful and scientific study and investigation of outbreaks of pestilential diseases occurring in the territories of the republics; requires the bureau to lend its aid and experience toward the widest possible protection of the public health of each of the republics, in order that diseases may be eliminated and commerce facilitated; and also to encourage and aid or enforce in all proper ways the sanitation of seaports, including the sanitary improvements of harbors, sewerage, drainage of the soil, paving, elimination of infection from buildings, and the destruction of mosquitoes and other vermin.

To carry out the above provisions it was recommended that a fund of $5,000 be collected by the Bureau of American Republics.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Dec. 3, 1902.

The President, Dr. Wm. A. Evans, in the Chair.

Sclerosis of the Mastoid Process.

DR. OTTO J. STEIN reported in detail cases presenting conditions of drug mania, but wherein operative measures revealed an advanced state of osteosclerosis of the mastoid process. He concludes that, as the result of changes going on within the mastoid process, wherein the mastoid cells are gradually being obliterated by the formation of new bone tissue, the symptom of pain may become so persistent and intense as to cause patients to take recourse to the effects of powerful drugs in order to obtain relief from suffering. The character of the pain is described as very deep seated; a dull ache, similar to a slight toothache, being constantly present. At intervals the pain increases to the extent of being neuralgic in character. It is centered mainly back of the ear, in the mastoid region, and thence radiating up toward the side of the head and down into the neck. Noteworthy is the absence of pain in front of the ear. Pressure over the mastoid, usually just back of the meatus, will elicit a sharp sensation of pain.

Dr. Stein holds that removing a core of bone from the eburnated mastoid process is justifiable and productive of prompt relief.

DISCUSSION.

DR. NORVAL H. PIERCE said that if there is such a thing as a primary sclerosis of the process of the mastoid which causes pain sufficient to force an individual to take morphin, etc., it adds a great deal to the difficulty in diagnosis. The literature does not warrant a belief that there is such a sclerosis. There is sclerosing osteitis in the mastoid, but this always follows suppuration in the antrum and the cells in juxtaposition thereto, and is the same process found in other similar bones. Therefore, one should be careful in accepting the conclusion of the essayist, inasmuch as it would be difficult to differentiate between this condition and true hysteria.

DR. WM. L. BALLENGER believes that there are cases of sclerosis of the mastoid attended by pain, but does not think that they are primary, that is, he does not believe a sclerosis of the mastoid exists previous to a suppurative process. He did not understand Dr. Stein to claim that these cases of sclerosis of the mastoid are primary, but that they might present with marked evidences at the time of the middle-ear disease. In dealing with these cases, one should differentiate between the neurasthenic cases referred to and a central mastoiditis, that is, a mastoiditis limited to the center of the mastoid process, without any extensive degenerative changes in the mastoid in general.

DR. HENRY GRADLE said that a mastoid operation is altogether too large to undertake without positive indications. If suppurative disease of the mastoid is suspected, one may be justified in operating, but where this can be excluded, it does not seem prudent to operate, as operative procedure may result in accidental complications in the hands of the best operators.

DR. STEIN, in closing the discussion, said that he did not state whether this is a primary or secondary condition. He is fully aware that the tissues are such as to lead one to think that the condition is essentially secondary, but he did not presume to answer the question definitely whether it is primary or secondary.

Splenectomy.

DR. J. CLARENCE WEBSTER reported a case of splenectomy. The patient was 37 years of age, family history negative. She gave a history of repeated attacks of malaria during her residence in the South for many years. Twice she was jaundiced, and twice had a severe pulmonary hemorrhage. Twenty-six years ago she had typhoid fever, and when a child was the subject of rheumatism. Her present illness dates back seventeen years, when she observed after the birth of her child a painful, slowly-growing swelling in the right iliac region. Four years ago a laparotomy was performed, and the operator said he found an inoperable tumor connected with her right kidney. When seen by Dr. Webster during the summer, she complained of severe pain in the abdomen, chest, shoulder and the right iliac region, dysmenorrhea, frequent and painful micturition, and shortness of breath. For the past eight years she had very severe colicky pains in the right side, which at times were so intense as to demand the administration of chloroform. After the subsidence of these pains, her urine was very dark, reddish-brown and of strong odor.

Physical examination revealed an emaciated and sickly-looking woman. The skin of the entire body was of a brown color, with here and there patches of intenser pigment. There were in and on the skin innumerable nodules. Examination of her blood showed 4,016,000 red cells, 16,800 whites, and 70 per cent. hemoglobin. Her temperature for the most part was slightly above normal, from 99 to 101 F.

Bimanual vaginal examination revealed a fixed and retroverted uterus, with appendages not distinctly palpable, but fixed and tender, and close to the right side of the uterus, extending to the ilium, and completely filling the right iliac fossa, was a large movable tumor. Examination of the bladder by the Kelly method was negative save a congested area behind the trigone. Catheterization of the ureters revealed a constriction of the right ureter three inches above the bladder orifice, which could be passed with a catheter. The urine obtained from the right ureter contained some blood, 1.5 per cent. of urea, and, microscopically, contained some small squamous and cuboidal cells, with a few hyaline and blood casts. The urine from the left kidney contained no blood or cellular elements, urea 1.7 per cent., and the quantity that was voided during the period that the catheters were left in the ureters (one hour and fifteen minutes) was three and one-half times greater than on the right side.

After treating the patient for a few months on tonics, she was operated on, September 25, and a large tumor was removed, enveloped in dense adhesions, and which was fixed to the brim of the pelvis, adherent to the uterus and its appendages, to the bladder, and also the vermiform appendix. This tumor was found to be a greatly-enlarged spleen. The patient made a very satisfactory recovery, and was exhibited by Dr. Webster. Microscopic sections of the spleen and the cutaneous nodules were also shown.

Funnel Pelvis.

DR. CHARLES B. REED reported an interesting case of funnel

pelvis. May 4, 1900, he was called in consultation to see a patient, aged 19, in her first confinement. In spite of the utmost efforts attempts at delivery failed, and craniotomy was done on the asphyxiated child. In October, 1901, she reappeared, pregnant for the second time, and Cesarean section was found necessary. The child weighed 7½ pounds, and after four weeks the mother left the hospital with her babe in excellent condition.

DISCUSSION.

DR. RUDOLPH W. HOLMES thought that funnel pelvis, taking all types, is not so infrequent as has been generally believed, but absolutely typical funnel pelvis, with normal brim and contracted outlet, is very infrequent. The most frequent type is the generally contracted one, with the contraction most marked at the outlet.

DR. REED said that forceps are most frequently used in these cases to terminate labor after the head is engaged, and failure with forceps means craniotomy, and success with the forceps might mean extensive lacerations of the soft parts of the mother, with the usual results.

The Relation of Gonorrhea to Tuberculosis of the Genito-Urinary Tract in the Male and Female.

DR. DANIEL N. EISENDRATH presented a study of the cases found in the literature and in his own practice, and drew the following conclusions:

1. That in patients suffering from an acute gonorrhea there may be an almost imperceptible transition into a malignant type of tuberculosis.

2. That subacute or chronic gonorrhea may mask the presence of a tuberculosis. That these, as well as the acute form, may act as predisposing and, at times, as exciting causes of tuberculosis.

3. In patients who show evidence of local complications of gonorrhea, such as prostatitis, vesiculitis, cystitis or epididymitis, one should always bear in mind the possibility of tuberculosis and examine the urine for tubercle bacilli, if antigonorrheal treatment causes no improvement.

4. In patients with marked tubercular history, an attack of gonorrhea should be carefully watched, and the prognosis be guarded.

5. Gonorrhea, both in the male and female, often prepares the soil for a later invasion of the tubercle bacillus.

DISCUSSION.

DR. A. J. OSCHNER quoted Hunter Robb of Cleveland, who found, in a very large percentage of cases, infection of the tubes, which, in their gross appearance, seemed to be purely gonorrheal in origin.

DR. G. FRANK LYDSTON thought no one would deny that any severe inflammation of a structure so important as the genito-urinary tract would serve as a possible predisposing or exciting cause of tubercular infection. He believes, however, that if gonorrhea is a powerful exciting or predisposing cause of tuberculosis, or so important as the essayist seems to believe, the profession would have a tremendous number of cases to treat of apparently primary tuberculosis of the genito-urinary tract, and that portion of the genito-urinary tract which is most severely affected, the distal portion, should exhibit many cases of primary tuberculosis, but, as a matter of fact, those cases are exceedingly rare.

DR. CHARLES S. BACON thinks the use of the term primary tuberculosis is misleading. He does not understand Dr. Eisendrath to imply that there was primary tuberculosis, but secondary tuberculosis, that develops in this region as the result of gonorrhea.

DR. F. KREISSL expected to hear the essayist mention the simultaneous primary infection of the genito-urinary tract with gonorrhea and tuberculosis, of which several well-observed cases are on record. He had seen a few. Adenitis, epididymitis and prostatitis, of the type described, ought to arouse suspicion and call for more careful investigation. Inasmuch as primary tuberculosis of the genito-urinary tract is comparatively rare, and its early detection still more infrequent, the well-known relation between this disease and gonorrhea ought to be a valuable auxiliary means in a possible early diagnosis and radical treatment.

DR. RACHELLE S. YARROS exhibited a large fibroid tumor of the uterus; also the pregnant uterus, both of which were removed a few hours previous to their exhibition.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Acne.

John V. Shoemaker, in the *Med. Bulletin*, states that hygienic and dietetic regimen should be observed. Exercise in moderation, fresh air and sunlight are beneficial influences. Avoid all indigestible foods and use local means to reduce inflammation. One of the most effective means is bathing the seat of the disease in water as hot as can be borne. The addition of borax or boric acid to the water is recommended. In the early stages of the malady ointments containing lead zinc or bismuth are beneficial. When the disease has reached a chronic form the applications should be of a more or less stimulating character. The gastrointestinal tract must not be overlooked. In order to overcome the sluggish movement of the intestinal canal the following pill should be taken at bedtime:

℞.	Pil. hydrargyri .....gr. xii	75
	Podophyllotoxini	
	Aloini, āā .....gr. i	06
	Olei cinnamomi .....m. i	06

M. Ft. pil. No. xii. Sig.: One pill at bedtime.

In order to improve the digestion the following mixture should be given after meals:

℞.	Acidi phosphorici dil. .....ʒv	20
	Tinct. cinchonæ comp.	
	Tinct. gent. comp., āā.....ʒii	60

M. Sig.: One teaspoonful well diluted after each meal.

Chloroform in Earache.

According to an abstract in the *Courier of Med.*, a simple, harmless and infallible cure for earache is effected by making a small funnel of stiff writing paper and saturating a ball of cotton the size of a hickorynut with chloroform and drop it into the funnel; place the small end of the funnel into the ear, draw a long breath and then blow the breath into the large end of the funnel; the fumes of the chloroform are thus carried into the ear and all pain ceases at once.

Atropin in Lead Colic.

Adolph Weber, according to an abstract in *Merck's Archives*, states that he has employed atropin in several cases of lead colic due to lead intoxication. At first he uses extract of belladonna in doses of ¼ gr. (.015) frequently repeated, but later he has given preference to the alkaloid atropin in dose of 1/60 gr. (.001) to 1/20 gr. (.003). Prompt relief generally follows, with the exception of cases in which opium has been previously administered. In such cases even enormous quantities of atropin remain ineffective, being neutralized by the opium. The atropin should be given hypodermically. No untoward effects have been observed.

Hydrotherapy in Chlorosis and Secondary Anemia.

According to the "System of Phys. Ther." the rules for the treatment of chlorotic and anemic states should be: 1. Avoidance of a reduction of the body-temperature below the normal, therefore, absolutely little abstraction of heat. 2. Increase in the irritability of the peripheral nerve termination, by means of preparatory heat accumulation or heat supply. 3. Vigorous nerve-stimulation by means of water at the lowest possible temperature.

Dr. Frank Billings, in an article on pernicious anemia, states that hydrotherapy applied in the form of high enemas of normal salt solution repeated two or three times in the twenty-four hours is of service. This treatment is based on the

theory that the disease is of probable toxic origin, with the seat primarily in the intestine.

Sedative in Acute Gastric Catarrh.

The following combination is of service in relieving the distress and vomiting in acute gastric catarrh:

℞.	Bismuthi subcarb.	ʒv	20
	Acidi hydrocyanici dil.	ʒi	4
	Liq. morph. hyd. (1 per cent.)	ʒii	8
	Mucil. acaciæ	ʒiss	45
	Aq. chloroformi q. s. ad	ʒiv	120

M. Sig.: One teaspoonful four times a day (before meals).

Diet in Gonorrhea.

The dietetic treatment of gonorrhea, according to H. Gilman Thompson, consists in avoiding all alcohol and stimulating food and drinking bland diluents. In severe cases, and in cases among young children who have in some manner been infected, a skimmed milk diet should be ordered at first. Later, light farinaceous articles, stale bread and butter, milk and rice puddings should be added. They must avoid acid fruits, all highly seasoned and fried foods, condiments and pastry. Alcoholic drinks in all forms are absolutely prohibited. Malt liquors are especially bad, as they are in all diseases of the urethra, bladder or prostate. No late meals should be taken. By observing these directions troublesome chordee and ardor urinæ, so apt to occur in the first fortnight, may be prevented. Large quantities of such waters as soda, seltzer, apollinaris and two or three quarts of plain water should be drunk. The fluid dilutes the urine, diminishes the danger of cystitis, and has the additional advantage of decreasing the appetite.

Dionin.

Darier, in *Ther. Monthly*, recommends dionin for tracheitis or bronchitis, prescribed in combination as follows:

℞.	Dioninæ	gr. iii-v	20-30
	Quininæ sulph.		
	Sodii bicarb., ää	ʒss 2	

M. Ft. Chart. No. x. Sig.: One powder three times daily; or:

℞.	Dioninæ	gr. iii-v	20-30
	Ammonii chloridi	gr. v-viii	30-50
	Sodii bicarb.	ʒiiss 10	

M. Ft. Chart. No. x. Sig.: One powder three times a day.

Fromme and Heinrich report this preparation to be a valuable substitute in morphinism; its utility being attributed to the fact that it produces no habituation, also in consequence of its ready solubility accumulation is less liable to take place. They claim that the morphin hunger is appeased and is not replaced by hunger for dionin. It is recommended in such cases in doses ranging from gr. 4/5 to gr. 1 (.05-.06). And to replace from 1/3 to 3/5 gr. of morphin he employs a daily total of gr. xv (1.00) of dionin.

Dionin is ethyl morphin hydrochlorate. It is soluble in seven parts of water, two of alcohol, and in twenty of syrup. The usual adult dose ranges from gr. ¼ to gr. i (.015-.06).

Hot and Cold Water in Eye Diseases.

The employment of hydrotherapeutic measures in the treatment of diseases of the eye are briefly considered, by W. O. Nance, in *Med. Standard*, as follows:

1. Heat and cold are best applied to the eyes by means of moist pads. They are more efficacious when employed in this manner than by means of the coil or bladder, in that their action is more penetrating, and their effect is more germicidal.

2. The application of heat is indicated in degenerative corneal processes—interstitial and phlyctenular keratitis, corneal ulcers, pannus, infected corneal wounds, suppurative panophthalmitis, in iritis and cyclitis, in muscular spasm, and in contusion and ecchymosis of the lids (black eye) to hasten the absorption of extravasated blood.

3. The application should be of the highest temperature the patient can endure (110 to 135) for a period of fifteen minutes, and repeated at intervals of two or three hours for several hours.

4. Cold is indicated in hyperemia and inflammations of the conjunctiva. In purulent conjunctivitis it is the remedy par excellence. In traumatisms, especially those of the iris and lens and in the early treatment of contusions of the lids its employment is of value.

5. In purulent conjunctivitis iced applications may be continuously used for many hours so long as the cornea remains unimpaired, in which instance they are positively contraindicated.

6. Hot applications greatly assist the rapid absorption of various medicaments employed in ophthalmic practice, and when used for this purpose should immediately precede the installations of such solutions.

Medicolegal.

Twelve Thousand Five Hundred Dollars for Injury to Eyes.—The Supreme Court of Rhode Island holds, in the personal injury case of Cummings vs. The National & Providence Worsted Mills, that a verdict for $12,500 could not be said to be excessive, where a belt parted and one end of it struck a man 51 years of age and earning $1,000 a year in the eyes with a force sufficient to break the glasses which he wore, driving the glasses into his eyes and displacing the interior parts of both eyes, causing the entire loss of sight in one eye and the loss of distinct vision in the other even at a distance of a few inches, with the probability, according to the undisputed medical testimony, of total blindness in the near future.

State Board of Health and Location of Cemetery.—The Supreme Court of New Jersey holds, in Dodd vs. Francisco, that, on appeal of the State Board of Health to reverse the determination of a municipal council and a local board of health respecting the location of a new cemetery, the state board, although acting judicially, is not required to examine witnesses under oath on matters in controversy before it. The matters to be considered by the board respecting the propriety of locating a new cemetery, it says, are of so general and public a nature that they can be decided more intelligently by observation and discussion than by testimony. In this respect the board resembles boards of assessment, whose proceedings involve the exercise of judicial functions, but whose judgment is to be founded on facts obvious to their senses, or ascertained by inquiry and examination; who, although not authorized to call witnesses and examine them on oath, should, as do surveyors and freeholders in road cases, visit the premises in controversy and avail themselves of every accessible means of information likely to aid them in reaching a proper determination. On such an appeal as above stated the State Board of Health may consider a report made by one of its committee on a previous hearing in regard to the same matter. On such an appeal the board is not confined to the determination of sanitary questions. The determination of the board on such an appeal is presumed to rest on proper grounds, and that presumption can be overcome only by the certificate of the board to the contrary, or by clear proof to the contrary in case a rule or order to obtain the board's certificate prove ineffectual.

Liability for Hastening Development of Disease.—The Supreme Court of California holds, in the personal injury case of Campbell vs. Los Angeles Traction Company, that an instruction was not erroneous which told the jury that if they found from the evidence that the party suing received the injury complained of by reason of the company's negligence alleged in the complaint, and at the time of the reception of such injury she was suffering from some disease, and they further found that such injury hastened the development of such disease, and that thereby, without the fault of the party suing, her present condition, whatever they might find that to be, had resulted from such injury, then the party suing was entitled to recover such damages as they might determine she had sustained from the injury. The court says that the thing involved was not special damage, requiring special averment, although two or three cases which were cited seemed

to support a contrary contention. Physical suffering and injury caused by violence to the person are the natural and direct consequences of the wrong, and are not in the nature of special damage, which must be particularly averred. Again, it says that the liability of one who commits an assault and battery or other unlawful violence to the person of another is not to be measured by the physical strength of the party injured, or his capacity to endure suffering. One of weak physical structure, or small vitality, or in ill health, has as much right to protection from violence as a robust athlete; and in either case the physical injury, the bodily harm, which is actually caused by the violence, whether he be strong or weak, healthy or sickly, is the natural consequence of the wrong, and need not be specially averred.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Philadelphia Medical Journal, December 6.

1 *The Symptoms of Prostatic Hypertrophy, Their Cause and Their Relief. Edward L. Keyes, Jr.
2 *The Existence of Typhoid Fever in Atlantic City. Philip Marvel.
3 Personality as a Factor in Medical Education. Edward A. Balloch.
4 *Some Practical Deductions from 63 Successful Consecutive Operations for Inguinal Hernia. R. C. Hill.

New York Medical Journal, December 6.

5 *The Treatment of Vascular Neoplasms by the Injection of Water at a High Temperature. John A. Wyeth.
6 *The Functional Weight-Bearing Method of Treating Congenital Dislocation of the Hip, as Originated and Practiced by Professor Lorenz. Dexter D. Ashley.
7 *The Diagnosis and Operative Treatment of Femoral Hernia, Including a Description of the Fabricius Operation. Russell S. Fowler.
8 *The Works of Edward Jenner and Their Value in the Modern Study of Smallpox. (Concluded.) George Dock.
9 A Case of Cancer of the Larynx Cured by the X-Rays. W. Scheppegrell.

American Medicine (Philadelphia), December 6.

10 *Pus in the Pelvis Depending upon and Complicating Appendiceal Disease in the Female: Methods of Treatment. John B. Deaver.
11 *Vaginal Section in Suppurative Disease of the Pelvic Structures: Indications and Technic. E. E. Montgomery.
12 *Pus in the Pelvis as a Result of Bone or Joint Necrosis: Diagnosis and Treatment. H. Augustus Wilson.
13 *Drainage in Operations for Suppurative Disease of the Pelvic Organs. J. M. Baldy.
14 *Clinical Notes on Some Recent Abdominal Cases. Reuben Peterson.
15 *The Gynecologic and Obstetric Aspect of Repeated Abortion. S. Marx.
16 The Modern Treatment of Eclampsia. Herbert M. Stowe.
17 *Reflections on State Medical Board Examinations and Interstate Reciprocity. Aloysius O. J. Kelly.
18 Mineral Waters: Their Use and Abuse. C. W. Chancellor.

Medical News (N. Y.), December 6.

19 *Volvulus as a Cause of Intestinal Obstruction: With a Report of Three Cases Operated upon Successfully. John F. Erdmann.
20 *Notes upon Several Unusual Larval Insects Occurring as Parasites in Man. Allen J. Smith.
21 Cellulitis of the Orbit, Eyelids, Forehead and Cheek, Following an Infected Sore upon the Finger: Treatment by Free Incisions and Subcutaneous Injections of Sublimate. Charles Stedman Bull.
22 *A Comparative Study of the Value of Methylene Blue and Quinin in the Treatment of Malarial Fever. John T. Moore and W. L. Allison.
23 Description of an Osteoplastic Metastatic Carcinoma of the Sternum Following a Primary Carcinoma of the Uterus. A. C. Yoder.
24 Laboratory Methods and the Country Practitioner. Edwin A. Murbach and John U. Fauster.

Medical Record (N. Y.), December 6.

25 *Operations upon the Uterine Appendages for Sterility. W. M. Polk.
26 *Spinal-Cord Tumors—Tumors of the Central Nervous System: Remarks on Noteworthy Cases. Joseph Collins.
27 *Are Vessels Infected with Yellow Fever? A Reply to Dr. Carter. Alvah H. Doty.
28 *A New Stain for Diphtheria Bacilli. William G. Schauffler.

Boston Medical and Surgical Journal, December 4.

29 The Rôle of the Physician. Charles D. Young.
30 *Some Observations upon the Value of the Phloridzin Test for Estimating the Functional Capacity of the Kidneys; Renal Sufficiency. Francis S. Watson and W. T. Bailey.
31 *Cryoscopy. William T. Bailey.
32 *A Note on Pleurisy in Typhoid Fever. George G. Sears.
32½ Infant Feeding. Ernest B. Emerson.

St. Louis Medical Review, November 29.

33 New St. Louis Water Supply. L. H. Laidley.
34 Public Sanatoriums for Tuberculous Persons. George Homan.

Cincinnati Lancet-Clinic, December 6.

35 The X-Ray in Lupus Vulgaris. M. L. Heidingsfeld.
36 The Ups and Downs of a Physician's Life. (Continued.) George J. Monroe.
37 Erysipeloid—Report of Case. H. Van Allen Spargur.
38 Surgery of Prostate, Pancreas and Diaphragm. (Continued.) B. Merrill Ricketts.

Medical Fortnightly (St. Louis), November 25.

39 The Advantage of Discipline to the Student of Medicine. F. Savary Pearce.
40 Ligation of Arteries (Cocain Anesthesia). B. Merrill Ricketts.

Medicine (Detroit, Mich.), December.

41 *The Ocular Manifestations in Chronic Bright's Disease. G. E. de Schweinitz.
42 *A Case of Gliomatosis. Augustus A. Eshner.
43 *Gallstones, or Cholelithiasis. A. A. Kerr.
44 *Nephritic Eye Lesions. Willis O. Nance.
45 *Paralysis and Damage Suits. Charles J. Aldrich.

Louisville Monthly Journal of Medicine and Surgery, December.

46 A Case of Deciduoma Malignum, with Remarks. Lewis S. McMurtry.
47 *Treatment of Fractures of the Patella. David C. Peyton.
48 Gunshot Wounds of the Kidney, with Report of a Case. W. O. Roberts.
49 Intestinal Autointoxication. F. C. Simpson.

Northwestern Lancet (Minneapolis), December 1.

50 *Report of a Grave Case of Tetanus Treated with Veratrum Viride, with Recovery. H. B. Sweetser.
51 A Case of Renal Tuberculosis. George Douglas Head.
52 *The Use of Formaldehyd in Diphtheria. C. A. Donaldson.

Colorado Medical Journal (Denver), September.

53 Cutaneous Tuberculosis. Henry G. Anthony.
54 Serum Treatment of Diphtheria. C. N. Ray.
55 *Uncertain Therapeutics. J. M. Blaine.
56 Tonsillitis. G. W. Robinson.
57 *Some Business Aspects of Medical Practice—Physicians' Business Leagues. John T. Davison.

Archives of Ophthalmology (New Rochelle, N. Y.), November.

58 Congenital Cyst of the Eyeball; Microscopic Examination. Arnold Knapp.
59 A Case of Hard Chancre of the Upper Lid. Fritz Weber.
60 Reflex Nystagmus. Carl Bär.
61 A Contribution to Irido-cyclitis, or phthisis Bulbi, in Cases of Sarcoma of the Choroid. K. Jarnatowski.
62 *Contributions to the Anatomy of the Myopic Eye—External Form, Ciliary Muscle, Optic-Nerve Entrance, Macular Disease, Spontaneously Cured Detachment of the Retina. L. Heine.
63 *Case of Chestnut-burr Thorns in the Cornea; Recovery, Partly by Absorption, Partly by Removal of the Thorns. C. B. Meding.
64 *On the History of the Theory of Sympathetic Ophthalmia. H. Gifford.

Southern Practitioner (Nashville, Tenn.), December.

65 X-Ray and X-Ray Therapeutics. G. P. Edwards.

Canadian Journal of Medicine and Surgery (Toronto), December.

66 *Value of the Roentgen Rays in Cancer. A. R. Robinson.
67 Neuroses as Seen in Orthopedic Practice. B. E. McKenzie.
68 *The Telephonic Properties of the Inflamed Abdomen: A Sign Not Hitherto Described, Due to Paralysis of the Bowel in Peritonitis. George A. Peters.
69 Cesarean Section Ten Minutes After Death of the Mother; Child Alive. W. J. Fletcher, F. S. Webster and W. J. Wilson.

Indiana Medical Journal (Indianapolis), December.

70 A Case of Bowel Obstruction from Meckel's Diverticulum. J. C. Sexton.
71 Seminal Weakness. James H. Brill.
72 Operative Treatment of Adenoid Hypertrophy in the Vault of the Pharynx. William F. Clevenger.
73 Brief Consideration of Tent Life and the Treatment of Pulmonary Tuberculosis. Clarence L. Wheaton.
74 The Druggist of Fifty Years Ago. George W. Sloan.

Journal of the Association of Military Surgeons (Carlisle, Pa.), November.

75 *Remarks on the Effects of the Luger and Colt's Automatic Pistols. Louis A. LaGarde.
76 The Nurse Corps of the Army. Anita N. McGee.
77 Lessons Drawn from Practical Professional Experience with Trained Women Nurses in Military Service. John W. Ross.
78 The Most Practicable Organization for the Medical Department of the United States Army in Active Service. Part 2. Frederick P. Reynolds.

Memphis Medical Monthly, December.

79 Medicine and Some of Its Tendencies. J. B. McElroy.
80 Ophthalmia Neonatorum, or Infantile Conjunctivitis. W. T. Michie.

81 Three Months' Office Experience in the Treatment of Chronic Dysentery. John L. Jelks.
82 Rupture of the Heart—Report of a Case. Cummings Harris.
83 A Clinical Report of Three Rather Peculiar Cases. Edwin Williams.
84 Feeding in Fevers. D. M. Hall.

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1. **Symptoms of Prostatic Hypertrophy.**—Keyes reviews the symptoms and treatment of prostatic hypertrophy at length, and remarks that chronic obstruction of urination is the underlying cause of almost all the symptoms and may be regarded as due to elevation of the internal urethral orifice. Obstruction, however, may exist without symptoms and symptoms without obstruction. As the immediate cause of all the symptoms is congestion, hence to the patient the disease represents only a congestion, while to the surgeon it is an obstruction, an elevation of the urethral orifice. The relief of congestion may be relief of symptoms without regard to the obstruction, but this is purely palliative and is not the function of an operation. Radical treatment consists in permanent relief of the obstruction in the floor of the urethra with little regard to congestion, and this may be accomplished by cauterization or extirpation of the offending mass through a perineal or a suprapubic incision. The elective operation must attack the obstacle most directly and remove it most rapidly, while preventing hemorrhage and providing perfect drainage. Of the operations employed at the present day, the one which most often fulfills these conditions is perineal galvanoprostatotomy, or Chetwood's operation. He describes this at length and discusses the other methods, showing the objections to them. Castration and vasectomy, he thinks, are likely to have only temporary effect, and the Bottini operation is a blind one and does not afford proper drainage, while suprapubic prostatectomy appears to be more dangerous than the perineal operation, and possibly does not afford as good drainage. It is more disfiguring and convalescence more delayed. Yet in enormous hypertrophy it may offer greater safety to the patient than a narrow opening and deep perineal wound. Of the two perineal prostatectomies, the Alexander and the Dittel, he thinks that the former is most thorough and satisfactory, but the Chetwood operation is, on the whole, the one that he recommends.

2. **Typhoid in Atlantic City.**—Marvel has studied the conditions and concludes that typhoid fever occurring in Atlantic City is not due to the water-supply or the milk-supply, but is probably an introduced disease.

4. **Inguinal Hernia.**—Hill favors a modification of the Halstead operation, leaving out the cut through the abdominal wall in cases with flabby musculature. He calls attention to certain points in the Halstead operation; first, the incision which is ordinarily made too low down, involving the loose tissues at the upper part of the scrotum. His own incision seldom exceeds 6 cm. in length, and its lower extremity corresponds very accurately with the location of the external ring, which is more quickly recognized by approaching it from above than below. The fibers of the external oblique aponeurosis are then separated to correspond with the length and direction of the incision in the skin, thus at once exposing the inguinal canal, the cord, a few vessels and the sac, covered by infundibuliform fascia. After this is divided, separation of the sac from the cord is accomplished with the utmost ease, and it is drawn up out of the scrotum until its ends are free. Thus gently separated, the oozing will be very slight, a ligature is rarely required, and subsequent ecchymosis seldom seen. He has only met with difficulty in two cases, both of which had previously been subjected to injections by persons claiming to cure rupture without the use of the knife. The method of managing the stump is an important one. It is important, he thinks, to have as complete removal of the sac as possible, and of every particle of slack peritoneum about the internal ring, leaving the visceral face of the internal ring as smooth as possible by amputating the sac high up within the abdomen and leaving no open passages or pouches of peritoneum to invite recurrence. A wet gloved finger is the best instrument for separating and loosening up the abdominal end of the sac, but roughness should be avoided. As the sac will often tear after being opened, this should be deferred until separation of its inner extremity has been fully accomplished. He has used only absorbable sutures, catgut or kangaroo tendon, though he admits that excellent results have been obtained by others with non-absorbable ones. In the after dressing he does not like to apply collodion gauze directly to the wound, but leaves a little material there to absorb the oozing that may occur, and keeps the collodion at a distance of 1 to 2 cm. from the wound. This is preferable to leaving the gauze beneath the non-absorbable layer of collodion to act as a culture media for skin bacteria at the edges. The dressing should be removed for the first time in three weeks, unless infection occurs, and the patient should then be allowed to get up out of bed, and, as soon as he feels able, to return to his usual vocation.

5. **Hot Water for Vascular Neoplasms.**—For the last two years Wyeth has treated a number of cases of angiomata by injections of water of high temperature, 190 to 212 F. and over. The varieties of tumors thus treated are arterial angiomas (cirsoid aneurism), capillary angioma, or mother's mark, and venous angioma or cavernous nevus. No accident has occurred in any of the operations, and the results have been such as to justify recommending the method. He employs a syringe with a metal cylinder and adjustable piston, with needles of varying size, and under ordinary aseptic precautions boiling water taken directly from the boiler is injected into the substance of the tumor. The quantity of water and temperature vary with the size and character of the neoplasm. In arterial and venous tumors of large size the needle is thrust deeply into the mass and from 30 to 60 minims of water are forced out. It is then withdrawn ½ to 1 inch, and the operation repeated until the entire tumor is solidified. The water should be hot enough to immediately coagulate the blood and the arterial tissues, but not to scald and produce skin necrosis. When the tension is sufficiently great to cause a slight bleaching of the integument the injection should be discontinued in that area. In treating capillary nevi or mother's marks of important structures, like the eyelid, nostrils or margin of the lip, a small instrument with a delicate needle should be employed and water a little below the boiling point (about 190) is preferable. Not over two to six minims should be injected in a single puncture, and the treatment should start from the various parts of the periphery, the operator watching closely the effect of the first injections, and after a week or ten days repeating them as may be indicated. Water at a very high temperature is apt to produce sloughing in the capillary variety. In cirsoid aneurism and the large cavernous nevi the water should be boiling and kept at the boiling point while the instrument is being used. For this purpose he advises a long metal instrument, beneath the barrel of which a Bunsen burner is held while the operation is being done. In this way the high temperature of the water is maintained in the syringe. The operations are performed under complete narcosis, and in no instance has there been any painful symptom or septic reaction, with the exception of a single case which passed from observation a few days after the injection and later became infected from a superficial eschar. Suppuration followed, but the general good results were the same as in the other cases. He illustrates his paper with a case, and advises special caution in treating angiomata of the scalp and neck, on account of edema. Not more than five or six ounces should be used in case of cirsoid aneurism of large size situated on the parietal bone.

6. **Congenital Hip Dislocation.**—The Lorenz method of treating congenital hip dislocation with special reference to the function of the weight-bearing use of the limb is described by Ashley, one of Lorenz's assistants. The details are too elaborate to be reproduced, but special importance is laid on the functional weight-bearing of the limb as affecting the prognosis. Lorenz believes that the child that walks for nine months with the limb in a stable position, stimulated by use, will have a much better chance than the one who refuses to walk. In double congenital dislocation the child can not walk, but she is allowed a rolling chair and can push herself around, propelling the chair by striking the toes on the floor, thus bringing the limb into activity.

7. **Femoral Hernia.**—Fowler points out the differences between femoral hernia and psoas abscess, varix, etc., and describes a modification of Fabricius' operation as practiced by Prof. G. R. Fowler. In brief it is given as follows:

1. The incision is planned so as to expose the insertion of that portion of the aponeurosis of the external oblique known as Poupart's ligament, at the spine of the pubes, and the line where that structure blends with the fascial structures of the thigh, as well as the sheath of the vessels at the crural opening.
2. The sac of the hernia is exposed and cleared to its neck.
3. The sac is opened and emptied, after which it is ligated at its neck, and the latter, in suitable cases, is inverted toward the abdominal cavity.
4. The edge of the aponeurosis of the external oblique is forced backward to the level of the upper margin of the horizontal ramus of the pubes, and there sutured to the periosteum and the origin of the pectineus muscle. By this means the space between the bone and the downward projection of the aponeurosis, in which space a femoral hernia forms before making its appearance externally, is obliterated.

The more elaborate technic of the operation is described at length.

8. **Edward Jenner.**—Dock finishes in this issue his article on Jenner, pleading at the close for a return to the Jenner principles in vaccination, insisting on training and expertness in the operators, the assurance of reliable and safe vaccine material and the necessity of revaccination.

10. **Appendicitis in the Female.**—The subject of Deaver's article is the connection of appendiceal inflammation in the female, with involvement of the adnexa, and he points out the ways in which this may occur. The symptoms of pyosalpinx due to appendicitis are those of appendicitis in the pelvis, followed by dysmenorrhea and irregular menstruation, sometimes leucorrhea and other symptoms of unilateral pyosalpinx without the indurated feeling of the vagina. There is also no history indicating a gonorrheal infection. The treatment will depend on the location of the pus and the condition of the pain. When the abscess is high enough in the pelvis to be reached by incision in the loin, reflecting the peritoneum from the iliac fossa, it may be opened and evacuated from its lower limits, and washed out and packed with gauze. This operation is advocated only because of the size and situation of the abscess and the infectious nature of the appendiceal pus, which may render complete operation more hazardous. Its scope is necessarily limited, and he has several times had to give up the attempt and open the parietal peritoneum after all. This is especially the case when the appendix, while pointing into the pelvis, is well to the median line, and the great omentum, endeavoring to aid in the formation of a protecting barrier, becomes infiltrated and simulates a mass. In desperate cases of anemia and sepsis the abscess may be evacuated by drawing the cervix well forward or backward and incising the posterior vaginal vault thoroughly, opening the peritoneum, and evacuating the pus; irrigation should not be practiced, and the cavity simply drained with gauze. This is a sort of last resort. Opening of a pelvic abscess due to appendiceal disease is a much more serious matter than the same operation for abscess due to tubal or uterine infection. Pus in the appendix is of virulent nature, and care should be taken to avoid spreading the infection.

11. **Vaginal Section in Pelvic Suppuration.**—Vaginal incision should be the operation of election, according to Montgomery, when the pelvis, and especially the retrouterine pouch, is the seat of a large collection of pus whether secondary to tubal disease or pelvic hematoma. It should be the only method contemplated when the condition of the patient is so precarious that a severe operation can not be considered, and in such cases should be confined to incision and drainage, leaving radical measures for the future. When the ovaries and tubes are so completely destroyed as to render their retention a menace, the experienced operator will prefer it. He describes the technic:

As a preliminary to the operation, the bowels should be thoroughly evacuated and the lower bowel cleansed by frequent enemas. The vagina should be scrubbed by gauze-wrapped fingers, using first a solution of creolin 7.5 cc. (℥ij), tr. sapon. virid. 60 cc. (℥ij) to a quart of hot water, followed by the same process with sterile water, and finally with alcohol. With a gauze sponge the vagina and vulva are wiped dry, the cervix seized with a double tenaculum and held forward, the perineum retracted and an incision with scissors or knife made through the posterior vaginal fornix to evacuate retro-uterine collections. The cavity is thoroughly irrigated with a hot normal salt solution, and a careful examination made of the pelvic viscera. The tubes and ovaries are easily traced; if either are sacculated they can be readily incised and their contents emptied. The exposed cavity should be thoroughly packed with iodoform gauze. When the distended tubes are not prolapsed they can often be more readily reached through an anterior incision. Through such an opening the fundus uteri can be turned down, the inspection of the ovaries and tubes secured, and proper treatment of diseased conditions instituted.

While he drains less frequently than formerly in abdominal operations he is confident that gauze drainage in the vagina makes convalescence more rapid and the after-results better.

After the incision, anterior and posterior, the fundus is turned forward, and the ovaries and tubes reached over the fundus. This position puts the broad ligament upon a stretch and permits its course to be followed readily so that adhesions of tube and ovary can be easily recognized and torn off with greater ease than when proceeding from above. The uterine arteries are easily seen and can be secured by pressure forceps. The upper part of the ligament should be ligated with chromic catgut. The uterine arteries are likewise ligated and the pelvic cavity packed with iodoform gauze.

The procedure can frequently be greatly expedited by employment of the method introduced by Landau and so extensively practiced by Pryor, which consists in the bisection of the uterus and the removal of the separate halves, which affords additional room for easy manipulation. When the suppurative condition is complicated by the presence of fibroid growths the latter can be enucleated and the size of the mass thus reduced.

The advantages of the vaginal section are: 1. It is regarded as a less serious operation by the patient, who will consequently consent to it at an earlier date, when the chances for her recovery without a sacrificial operation are much more probable. 2. The patient experiences less pain and discomfort, her convalescence is more rapid and she bears on her body no marks of the procedure.

12. **Pelvic Bone Necrosis.**—The different forms of pelvic suppuration due to disease of the pelvic bones are noticed by Wilson, who speaks particularly of the later effects of infantile Pott's disease on childbearing women. He remarks that the more or less common backache of pregnant women is often in reality the cry for relief of the overburdened spine that had recovered from tuberculosis in childhood, and pregnancy may set up a sort of recrudescence of the early disease. Sacroiliac disease is noticed at length as making more trouble for diagnosis and the more unfavorable prognosis on account of the late period of its recognition. He protests against the prevalent idea of the hopelessness of tuberculous bone disease, which has done more to interfere with complete recovery by postponing rational treatment than anything else.

13. **Drainage in Pelvic Disease.**—As a general rule drainage is becoming less and less used with greater experience and skill in technic. The complicating conditions which modify this rule in pelvic diseases are abscess in the adhesions, lymph surrounding the affected organs, and the acuteness of the infection, especially the latter. We should consider, however, that pus which is to-day virulent and almost certain to infect the operative wound, may next week be handled with impunity. Acute suppurations of the pelvic organs, either gonorrheal or puerperal, should be allowed to advance as far into the subacute stage as is permissible with the safety of the patient before operation. In cases of gonorrheal infections, this advice is safe for any operator to follow, but may be dangerous in respect to puerperal infection. Every case, however, must be studied on its own merits, and when in doubt the decision is generally against drainage. Suppurative disease of the pelvis, such as puerperal abscesses (intraperitoneal), suppurations in the pelvic connective tissue (broad ligaments, etc.), pus in the pelvis as the result of bone or joint necrosis, will always demand drainage, and the sooner established the better. In the first two diseases vaginal drainage is safest and best. Vaginal operations always demand a higher percentage of drainage than other operations, and it is one of the greatest objections to this route of operating. Baldy considers that he drains not more than 5 per cent. of his cases. The temperature and pulse will have to be largely relied on, together with the knowledge that the case is one that might demand drainage. He speaks of the possibilities of infection through the drainage tube, and says that surgeons who dispense with drainage rarely or never see a fistula or infected ligatures. The risks of pelvic surgery are reduced to a minimum, and the best interests of the patient subserved when the drainage tube is dispensed with, especially since it is true that if an error of judgment has been committed the mistake is so readily and safely corrected.

14. **Abdominal Cases.**—The cases reported by Peterson are of splenectomy, Cesarean section, puncture of ovarian cyst, and myomectomy in a pregnant woman.

15. **Abortion.**—Marx discusses the subject of abortion. He speaks of lues, which he considers the most prolific cause, next of the toxemia of pregnancy. He understands by this a total and progressive diminution in the daily excretion of urea without evidence of more than a functional renal lesion, accompanied or not by symptoms of constitutional poisoning. There is a difference, however, in individuals in regard to the amount of excretion of urea; it is just possible that certain women excrete habitually a minimum amount, and this might lead to error. If a patient with a history of repeated abortions presents herself with absence of other disturbing conditions, we should estimate the urea from a 24 hours' specimen. Should this fall much below the average, whether there be systematic symptoms present or not, we must consider this a causal factor in the production of the abortions. These patients must be kept in bed and treated accordingly, until the urea estimate is increased up to and above the normal. Endometritis and allied conditions and complications are also important causes, as well as uterine displacements. For the latter Marx condemns abdominal fixation methods as most reprehensible during the childbearing period. The uterus should be suspended freely and not fixed.

17.—See abstract in THE JOURNAL of October 4, p. 857.

19. **Volvulus.**—Erdmann discusses Gibson's statements in the *Annals of Surgery*, Vol. xxxii, and reports three cases. He remarks on the difficulty of diagnosis in cases of obstruction and the special points indicating volvulus, such as slowness of onset, lack of shock, age of the patient, distension of the abdomen outlined in the coils of the intestine. The high mortality in Gibson's cases when the small intestine was involved is noted, and he remarks that it can only be theorized on. Possibly the great sympathetic supplying the small intestine shares the major portion of the responsibility by inducing a more profound degree of shock. He also asks the question, how many of Gibson's cases were subjected to an artificial anus, as in modern surgery the mortality rate is less in primary excisions of gangrenous small intestine than in those cases where an artificial anus is made in the small intestine. His own cases are given in detail.

20. **Unusual Larval Parasites in Man.**—The species here observed are those supposed to be the *Tenebrio obscurus*, which was ejected by a colored man by coughing, though probably from the esophagus or stomach, and the *Hypoderma bovis*, which was found under the skin of a white boy.

22. **Methylene Blue and Quinin in Malaria.**—Moore and Allison have experimented with these drugs and give the results in detail in tabulated form. Their conclusions are:

1. Methylene blue will destroy malarial parasites in many cases, but is less certain than quinin.
2. Methylene blue is probably most valuable in chronic cases, but has no advantage over quinin.
3. The effects are ordinarily more unpleasant than quinin.
4. It is useful in cases that can not take quinin on account of some idiosyncrasy to it. Its use in cases of pregnancy is undetermined.
5. It is probably valuable in treating hematuric and hemoglobinuric fevers on account of its diuretic action; this has yet to be determined. We have had no chance to test its use in such cases.
6. We believe that quinin is quicker and much more certain and would rely on it rather than on methylene blue.

25. **Sterility.**—The point made by Polk is the extension to the condition of sterility of an accepted procedure. He reports from the literature cases where operations on the adnexa, leaving them apparently in a badly mutilated and non-functionating condition, were nevertheless followed by restoration of function and pregnancy. In one case reported by Baer the appendages on the left were removed entirely, those on the right having been dissected from their adhesions, were in shreds, the tube having been torn off about two inches from the uterus. Fifteen months later the patient gave birth to a child. In another case reported by MacMonagle the right appendages were removed, the ovarian vessels on both sides were ligated and ligatures placed around the left appendages, which were connected with a pus cavity discharging through the rectum. A portion of both the left appendages had to be left in the stump for anchorage. Three years afterwards the woman gave birth to her first child. He refers to other cases and reports one of his own and emphasizes the possible value of freeing the ovaries and tubes from adhesions in its effect on the subsequent function of the organs. As much normal ovarian tissue is to be left as the diseased conditions will warrant and he would give the ovaries the benefit of the doubt in dubious cases. If the uterus is displaced backwards it should be approximated to its normal position, preferably by shortening the round ligaments. The main point is that where sterility is the leading complaint and perhaps the only one, and the difficulty lies in the condition of the appendages, much can be done for its relief.

26. **Spinal-Cord Tumors.**—Spinal-cord tumors are much more difficult to diagnose than those of the brain, and, as generally understood, they include not only those of the cord itself, but anything that encroaches on the cord, or interferes with its function and anatomy. It is important to distinguish intradural, extradural and intramedullary growths, but Collins finds this distinction can only be approximate. Until recently it was supposed that intramedullary tumors were hopeless, but Abbe has recently published a case where the removal was done successfully. Nevertheless it may be said they are still virtually beyond surgery. Collins reviews the symptoms of spinal tumors, pain, disturbance of the tactile sensibility, motor symptoms, spasticity, with later paralysis, exaggeration of the reflexes, visceral symptoms, and muscular atrophy and bed sores as late manifestations. These symptoms are inconstant and in a measure depend on whether the tumor is intra- or extra-medullary. The main difficulties in the diagnosis of spinal cord tumors are to determine where the tumor is in relation to surrounding structures, that is, whether intra- or extra-dural, and at what segment of the spinal cord it is situated. In intramedullary tumors the paraplegia is usually not so complete, but the great point in the diagnosis between the two forms is pain, which in intramedullary tumor is rarely an initial symptom, but is almost nvariably so in tumor of the meninges and often severe. A study of the anesthesia must be made to determine the locality of the tumor and the tendency is to locate it too low, therefore an opening should always be made at the upper end of the supposed tumor, and if not found, a further opening should be made in an upward rather than in a downward direction. The consensus of opinion seems to be that the location of the tumor in the cord is from two to four inches above the uppermost limits of the anesthesia, more often the higher than the lower limit. The widespread area of pain is often confusing, and it must be taken in connection with other localizing symptoms. Intradural tumors are nearly twice as common as extradural ones. The latter may exist a long time without giving rise to symptoms, while the former very early produce symptoms. The favorite location is the dorsal region, the lower and upper ends. Thirty-five of the 70 cases analyzed in this paper were in this region, 15 in the cervical, 13 in the lumbar and sacral, and 6 of widespread distribution. Collins reports 2 cases at length and discusses the statistics and results of the operations. He finds that operation is growing in favor, and when one considers the hopelessness of these cases under medical treatment, it is readily seen that surgical interference is the only hope. The results already obtained prophesy still better success in the future and the importance of early operation is emphasized. If recovery does not occur in two or three months after treatment a further improvement may hardly be expected. Immediately after the operation, however, a temporary accession of paralytic phenomena not due to changes produced in the cord by the tumor itself, but secondary to the trauma of the operation, appears in many cases. While the surgery of the spinal cord offers a very attractive field, still the inadequacy of surgery is very manifest. The operations are as prolonged as formerly, the loss of blood is great and sepsis is about as frequent as ever. Therefore, we can not yet say that the majority of spinal-cord tumors can be operated on with success. The latter part of Collins' paper is devoted to a recapitulation of the published cases in the literature.

27. **Yellow Fever.**—Doty replies to an article written by Dr. Carter of the Marine-Hospital Service holding that vessels are secondarily infected with yellow fever. He criticizes Carter's conclusions mainly on the ground that they are not derived from his personal observation, and, therefore, are not conclusive.

28. **A New Diphtheria Bacilli Stain.**—Schauffler has improved on Piorkowski's method of staining by substituting pyronin (Grübler) for eosin. The solutions used for making the stains were as follows:

Filtered solution Löffler's methylene blue..... 10 c.c.
Filtered solution pyronin (Grübler)..... 1.5 c.c.
{ Pyronin, 0.5 gram.
{ Aquæ dest. 10.0 c.c.
Three per cent. HCl-alcohol..... 0.5 c.c.
{ Alcohol absol. 97.0 c.c.
{ HCl. (25 per cent.) 3.0 c.c.

To prepare specimen: 1. Make cover-glass smear and fix by passing through a flame three or four times. 2. Drop on to a fixed smear enough solution to cover it and let it stand one minute. 3. Wash thoroughly in running water. Mount in Canada balsam and examine with 1-12 oil immersion lens. Magnify 1,000 times.

The above procedure will show the bodies of the bacilli stained blue while the poles are a bright ruby red.

Pseudo-diphtheria bacilli are smaller and take on only a blue color. The bacilli of Asiatic cholera and plague, when stained by this method, show granular bodies in their interior, but these bodies are not metachromatic like those of the diphtheria bacilli described.

30. **The Phloridzin Test.**—Phloridzin is a drug from which glucose is separated in the course of its passage through the body, as shown by the presence of sugar in the urine after its administration. It is perfectly harmless and shows that under normal conditions the two kidneys have equal functional capacity. Watson and Bailey have experimented with this test, their studies going over a period of seven months, using subcutaneous injections of phloridzin to estimate the average amount of sugar eliminated within a specified time after administration; the rate of the sugar excretion; the effect of ether anesthesia on the renal function, and the value of phloridzin as compared with that of the ordinary methods of urinary examination. The general results of their experimental observations are a confirmation of the claims made for the value of the phloridzin test. When studied in relation to the individual cases, however, certain contradictions and defects became apparent. They find that the average quantity of sugar eliminated in the first half hour after the administration of the drug subcutaneously when the kidneys were normal, was about 45 per cent.; and that the first half hour's elimination is greater than the second half hour's by about .06 per cent. When renal disease exists, the first half hour's quantity of sugar eliminated is, for a series of cases, about one-half as much as that when the kidneys are normal, and there is little difference between the two half hours. The effect of ether ansthesia is to stimulate the kidneys to greater functional activity, but the renal function is not, as judged by the phloridzin test, in any way impaired by the anesthesia. This is true only when the kidneys are normal; when they are diseased, ether fails to stimulate them. There is, moreover, relatively much less sugar eliminated in the first than in the second half hour after phloridzin has been given than is the case when the kidneys are sound, judged by the average results. In a series of cases taken collectively the phloridzin test gives accurate indications of the condition of the renal function and of the existence of renal disease. In a certain number of individual cases, it even appears to be more delicate and discriminating than the ordinary urinary tests, but the relatively large number of instances in this series of observation, in which the reverse of this is true, shows it to be too variable to be trustworthy.

31. **Cryoscopy.**—The method of cryoscopy is described by Bailey. The urine must be obtained by means of the urethral catheter, the blood by a small trocar inserted into one of the prominent veins of the arm, and collected in a perfectly clean test tube. The freezing point is determined by the use of a freezing mixture of cracked ice and salt in which a large glass cylinder or test tube is inserted. This is the receiver for a smaller test tube, which is to contain the blood or urine, kept from contact with the walls by means of a cork and a rubber band about the bottom of the smaller tube. The thermometer is suspended in the smaller tube through the stopper. A sufficient amount of blood or urine is put in to completely cover the bulb of the thermometer. The liquid should be stirred occasionally and the layer of ice and salt mixed by means of a wire or spiral passing through the stopper. The mercury will first fall to a point where it remains for a short time stationary, after which it will rise to a permanent level—the freezing point. The whole test should take not longer than fifteen to twenty minutes. To briefly summarize, Bailey says:

The results of cryoscopy in renal disease, as reported in the different foreign medical journals, would appear to be of the greatest value, and if by further work in this line its value receives additional corroboration, the surgeon of the future will have a means of diagnosis which will be invaluable in all prospective operations on the kidneys.

32. **Pleurisy in Typhoid.**—Sears reports a case and remarks on the complication, which seems to be one of the rarer ones. It is most common after the first week, while the temperature is still high, but may be delayed until convalescence or even relapse. It may show itself by the usual symptoms of pleurisy, but more frequently its onset is insidious and its presence is only discovered on physical examination. The typhoid bacillus has been demonstrated as the cause in a considerable proportion of cases.

41.—This article has appeared elsewhere. See THE JOURNAL of December 13, p. 1551.

42. **Gliomatosis.**—Eshner first gives a classification of the conditions of the morbid cavities of the spinal axis and their causation, and reports a case which he considers to be one of gliomatosis or syringomyelia of the cervical type. The symptoms had a tendency to unilateral prominence and indicated also involvement of the bulbar nerves.

43. **Gallstones.**—Kerr offers the following deductions: That gallstones are more frequent than commonly supposed, and many cases of supposed chronic stomach trouble are their victims. Tenderness at a point half-way between the right costal cartilage and the umbilicus, elicited either by gentle pressure or by a gentle punch is important as a diagnostic symptom of cholelithiasis or cholecystitis. A proper regulation of hygiene, diet containing a large percentage of albuminous or nitrogenous food, abundance of outdoor exercise, and the use of plenty of water are the best prophylactic measures. The rational treatment of gallstones (after they have formed) is their removal by surgical measures, as no internal medical treatment can be relied on. There is an analogy to some extent between the gall-bladder inflammation and appendicitis; the best time to operate is after the acute attack has subsided, unless septic symptoms demand immediate intervention. The *x*-ray is not as valuable in locating biliary calculi as it is in diagnosing stones in the kidneys. Cholecystectomy is more in favor than formerly, and the results reported have been rather good.

44. **Nephritic Eye Lesions.**—There is no vascular structure of the eye that can not be affected in kidney disease, neither the retina, conjunctiva, uvea nor the lids. The external muscles also may show pathologic signs directly or indirectly attributable to the nephritic condition. Swelling of the eyelids, particularly the lower ones, is also suggestive of renal trouble. Chemosis or swelling of the conjunctiva is sometimes observed, and when unaccompanied by severe local inflammatory processes, should lead to careful examination of the urine. Recurring subconjunctival hemorrhages in persons over 40 should be considered suspicious, and Nance thinks it is a matter of some importance. Primary iritis occurs in a number of cases, and where no syphilitic or rheumatic history can be clearly demonstrated, renal disease may be looked for. Paresis of the several extrinsic ocular muscles, due to sclerosis of the nerves, or to a hemorrhage at their origin is not infrequent. Diminution in the power of accommodation in those past middle life, requiring frequent change of glasses for new work, is a symptom of well-advanced kidney disease. There is a possible connection between catarrh and kidney disease, though it is not

yet decided. The most important lesions, however, are the intraocular ones demonstrable by the ophthalmoscope, albuminuric retinitis. This never appears until the disease is well advanced and indicates a very unfavorable prognosis. Uremic amaurosis is sometimes confounded with albuminuric retinitis, but differs clinically from it so as to be easily recognized. It is more commonly met with in acute nephritis, though it may occur in exacerbations of a chronic condition.

45. **Paralysis and Damage Suits.**—The point insisted on by Aldrich is careful examination by the examining surgeon, with which he maintains it is impossible for a simulator to succeed.

47.—See abstract in THE JOURNAL of November 1, p. 1132.

50. **Tetanus.**—Sweetser remarks on the mortality of tetanus under the ordinary treatment, and reports two cases. The first was one of short incubation and acute development treated by antitetanus serum with chloral and morphin and resulting fatally. The second was that of a girl fourteen years of age who had had an operation for ovarian cyst which had been preceded by a vaginal examination, which he thinks introduced the bacillus into a wound or abrasion. The case was an acute one, but the incubation was rather long, thirteen days. The treatment was morphin during the acute stage to control the pain, ¼ gr. doses every four hours, antitetanus serum, which seemed to him ineffective, bromids and chloral. On the fifth day veratrum viride was tried, in addition to gelsemium, with remarkable effects on the convulsions. The vomiting was severe, and the doses were reduced from 8 minims of Norwood's tincture and of the fluid extract of gelsemium to 6 minims every four hours and then every five hours. He then returned to chloral and bromid, but the bad conditions recurred so that the veratrum viride and gelsemium were recontinued and increased. The patient made a good recovery. In the ten days about 17 drams each of Norwood's tincture and of fluid extract of gelsemium were given per rectum, with no effect on the cerebrum and no general depressing effect on the system, this being in marked contrast to the chloral. He reviews the different remedies and their effects, and states that the points which he wishes specially to emphasize are the recovery of a severe case under this treatment, the use of remedies which affected the anterior horns of the spinal cord in directly the opposite way from tetanus toxin, and to call attention to the fact that chloral is a dangerous drug, which is more likely to poison the system in this disease than even in health. To record also the opinion, based on observation, that some of the deaths ascribed to the tetanus poison have really been due to the effects of the remedies used.

52. **Formaldehyd in Diphtheria.**—The treatment here recommended by Donaldson is fumigation of the patient's room by burning either tablets or candles of formaldehyd in the adjoining closet, leaving the door open long enough for the escape of gas into the room or, in preference to this, when possible, to fumigate a room and transfer the patient to it and then fumigate another room and transfer the patient back, one room to be used during the day and the other at night. He tabulates seven cases thus treated, five of them of the ordinary type and two mild, with good results. These are not considered numerous enough for definite conclusions, but are of value as of sufficient importance to report with the hope for a further investigation of a remedy which always holds an important place in the treatment of the disease. He does not say just how much of the gas was allowed in the room, but, of course, the air must have been respirable.

55.—See abstract in THE JOURNAL of August 9, p. 329.

57.—Ibid.

62. **Myopic Eyes.**—Heine has examined myopic and emmetropic eyes extracted after death, with special reference to the condition of the ciliary muscle and optic nerve entrance. He also has compared them with the eye of the pigeon, which has a different arrangement of muscular fibers. He found that the ciliary muscle of the myopic eye may have a form generally supposed to be found only in hyperopia, and also found a decided difference in the optic nerve entrance. In emmetropic eyes the nerve fibers run almost directly forward until they reach the lamina cribrosa, when they curve outward and then inward, to enter the retina. In the eye with 10 D. myopia, the fibers of the nasal half of the nerve ran almost straight to the lamina cribrosa and then turned sharply to the temporal side for some distance before turning again to enter the retina, the choroid and the retina being here displaced temporarily over the sclera and lamina cribrosa. In the eye with 15 D. myopia the displacement was still more marked and farther over the disc. The pigment epithelium, however, extended almost to the axis of the optic nerve.

63. **Chestnut-Burr Thorns in the Cornea.**—Meding reports a case where a child had a chestnut burr fall on the eye and eight thorns transferred to the cornea, the points projecting into the aqueous chamber within a very short distance of the iris and lens. An attempt was made to remove one of the thorns, and it was found that the slight pressure made on the cornea brought the thorn points into contact with the iris and lens, and the attempt was unsuccessful. Dr. Herman Knapp advised atropin, rest, and no surgical interference whatever. The advice was followed, with the result that the thorns gradually loosened by slight ulceration about the base of each, and were extracted or absorbed, leaving only three scar points, two so tiny and faint as to escape any but careful scrutiny, one somewhat larger and denser, the latter at the point of attempted removal. He remarks on the aseptic nature of the thorns, the curious tolerance of the cornea, the general absorbtive powers of the aqueous for vegetable matter, and the wisdom of retaining thorns as plugs for the holes they made, thus preventing infection; a hint of wide application.

64. **Sympathetic Ophthalmia.**—Gifford reviews the theories of sympathetic ophthalmia, favoring the germ theory and in support of Berlin's assumption of the existence of germs especially adapted for growth in the tissues of the eye. He mentions, as analogous, the peculiarities of the trachoma germ, which affects nothing else than the conjunctiva or possibly the lachrymal sac. In case of sympathetic ophthalmia, however, it is not necessary to assume the existence of a germ especially adapted by nature for growth in the tissues of the eye. The rarity of the disease and the fact that it is practically incapable of propagation from case to case speak against the assumption; but it may be that various species of microbes, after growing within the eye for several days or weeks, may, by a process of natural selection, acquire a certain specific adaptation to the uveal tract, so that, on being carried to the second eye by the blood current, they find there conditions most favorable to their development.

66. **X-Rays in Cancer.**—Robinson's address covers the subject of the treatment of malignant disease with the Roentgen rays, which he considers a very valuable addition to our armamentarium, and says that some cases of advanced epithelioma are incurable otherwise. Many of the cases cured and regarded as inoperable by other means could have been quickly cured in an early stage of the disease, hence physicians should devote proper attention to this disease. The majority of cases so far cured could have been more quickly cured by the knife or caustics, especially the latter. In cutaneous cancer the scar is sometimes better after the ray treatment than after the use of caustics, but, as a rule, caustics are preferable, as their action is definite and there is a saving of time in their use. In cases of cutaneous cancer the rays are a valuable adjunct of other methods, and when the disease is situated around the important blood vessels, it is the only method to employ, except in some cases of disease of the extremities, when amputation should be advised. All cases of mammary carcinoma, except those seen in a very early stage, should be treated by the ray treatment before resorting to the knife, and the rays should also be used in all inoperable cases, and in all cases after amputation has taken place. According to our present knowledge, ray treatment is not curative in internal cancer of any part of the body. To obtain the best results in all cases, there must be no fault in the technic of the operation in order to avoid a serious burn and obtain the desired action on the cancer tissue.

68. **Paralysis of the Bowel.**—A new sign mentioned by Peters is conduction of the heart and respiratory sounds over the whole bowel in case of paralysis with abdominal distension, associated with inflammatory conditions. This special conduction is not present nor is it met with in distension due to ascitic fluid or tubercular fluid unassociated with acute inflammatory conditions. The facts are: 1. The heart and breath sounds are not heard over the abdomen during health, at all events not below the area of the stomach. 2. They are not heard in non-inflammatory conditions of distension. 3. Their prominence in inflammatory conditions is greatest when the gurgling sounds of peristalsis are entirely absent. The inference is that the condition responsible for the phenomenon is paresis or paralysis of the musculature of the bowel wall due to the inflammatory disturbance. It is, therefore, submitted that if these observations are verified, the sound is a valuable one in the diagnosis of paralysis of the intestines, and has a somewhat important prognostic significance, especially if the paralysis is due to sepsis, as is usually the case.

75. **Pistol Shot Wounds.**—LaGarde publishes the results of experiments with the Luger and Colt's automatic pistols in use in the Army, and concludes that their stopping power is hardly sufficient, and that surgeons should be guarded in their recommendations of such firearms as efficient military weapons in savage warfare.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal (London), November 29.

1 *Atonic Motor Insufficiency and Dilatation of the Stomach: Their Causes, Diagnosis, and Treatment. Robert Saundby.
2 *Hair-Balls and Other Concretions in the Stomach. W. Soltau Fenwick.
3 *Dyspepsia and Its Treatment by Antiseptics. Guthrie Rankin.
4 On Four Cases of Perforating Gastric Ulcer, of Which Three Recovered. Robert Jones.
5 Operations for Gastric Ulcer, Acute and Chronic. Rushton Parker.
6 Natural History and Pathology of Pneumonia. W. Hale White. (Abstract.)

Archiv f. Gynaekologie (Berlin), lxvi, 3.

7 *Ueber Microorganismen des Vaginal-Secretes Schwangerer (of pregnant women). H. Bergholm.
8 *Deportation of Chorionic Villi. W. Poten. Die Verschleppung der Chorionzotten.
9 *Einiges aus Geburtshilfe und Gynaekologie des Aetios von Amida, A. D. 540. M. Wegschneider.
10 Fall von acutem Hydramnion bei eineligen Drillingen. J. v. Braitenberg.
11 Zur Kenntniss der Kraurosis Vulvæ. W. Darger.
12 Ueber gleichzeitiges (simultaneous) Bestehen von papillären Adenomen in Niere (kidney) und Uterus mit Metastasen-Bildung. J. Voigt.
13 *Beitrag zur Etiologie der Hydrorrhea gravidarum. G. Fleck.
14 *Zur Etiologie, Diagnose und Therapie der extrauterinen Gravidität. R. v. Braun-Fernwald.
15 (Vol. lxvii, No. 1.) Zur Pathologie des Ligamentum rotundum uteri und des Processus vaginalis peritonei. W. Vassmer.
16 *Weitere Erfahrungen (further experiences) über Ureterfisteln und Ureter-Verletzungen (injuries). W. Stoeckel.
17 Cesarean Section in Finland. G. Heinricius.—Fall von Kaiserschnitt nebst Mittheilung über die in Finland ausgeführten Kaiserschnitten.
18 Ueber die Enstehung (origin) von Hymen-Cysten. R. Ziegenspeck.
19 *Placenta Previa. O Strassmann.
20 Zur Frage des Beweiswerthes (value) der Lungenprobe (floating test). Haberda.

Berliner Klin. Wochenschrift, to November 17.

21 (No. 41.) Zur Technik der Leucocyten-Zählung (counting). R. Breuer.
22 Ueber Sclero-Edem. A. Buschke.
23 Lactophenin in 450 Cases of Typhoid. C. v. Schuler.—Erfahrungen über die med. Behandlung des Typhus abd. mit Lactophenin in 450 Fällen.
24 (No. 42.) *Cinnamic Acid in Tuberculosis of Lungs and Larynx. H. Krause.—Zur Behandlung der Lungen- und Kehlkopf-Tuberculose mit Hetol (Landerer).
25 *Ueber die Ursachen (causes) des primären Glaucoms. G. Levinsohn. (Commenced in No. 41.)
26 (No. 43.) Weitere Untersuchungen über Hemolyse im heterogenem Serum. P. Baumgarten.
27 *Zur Photographie des Augenhintergrundes (fundus of eye). W. Thorner.
28 *Ueber Flimmerscotom und Migrän. F. Jolly. (Commenced in No. 42.)
29 Untersuchungen (researches) über Streptococcen und Antistreptococcen-Serum. H. Aronson. (Commenced in No. 42.)
30 *Rudolf Virchow's Unfall (accident) und Krankheit (illness). W. Körte.
31 (No. 44.) Rudolf Virchow. J. Orth (Virchow's successor in the faculty).
32 *Ueber den klin. Werth (value) der Ehrlich'schen Dimethylamidobenzaldehyd-Reaction. E. v. Koziczkowsky.
33 Die moderne Localisations-Theorie in psychologischer Beleuchtung. E. Storch.
34 (No. 45.) Ueber Meningococcen-Septikaemie. H. Salomon.
35 Romanowsky Stain for Sections of Cancers. L. Feinberg.—Ueber die Anwendung der R.'schen (Methylenblau-Eosin) Färbe-Methode in den Gewebsschnitten, speciell bei den Krebsgeschwülsten. Ein Differentiell-Färbung der in den Krebsgeschwülsten vorkommenden einzelligen selbständigen Organismen.
36 (No. 46.) *Ueber locale Wärme-Application. A. Gross.
37 Bovine and Human Tuberculosis. M. Wolff.—Perlsucht und menschliche Tuberculose.

Deutsche Med. Wochenschrift (Leipsic), November 20 and 27.

38 (No. 47.) *Ueber Prurigo lymphatica. A. Buschke.
39 *Impf- (inoculation) Metastasen der Carcinome. L. Brieger.
40 *Zur Frage der Lymphoma malignum. J. Spljarny.
41 *Relations between Tuberculosis and Cancer. E. Aronsohn.—Beziehungen zwischen Tub. und Krebs.
42 Significance of Schueller's Cancer Parasites. H. Mohr.—Zur Bedeutung der S.'schen Krebsparasiten.
43 Ueber 2 Fälle von Esophagus-Carcinom welche unter dem Bilde eines Aorten-Aneurysmas verliefen. R. Kuckein. (Commenced in No. 46.)
44 *Beitrag zur Behandlung des Empyems. C. Israel.
45 Beitrag zur Casuistik der Atropin-Behandlung des Ileus. E. Gebauer.
46 Ueber Milch-Pasteurisirung in der Kinder-Praxis. A. Hippius.
47 Soll der praktische Arzt sich ein Roentgen-Instrumentarium beschaffen oder nicht? Faulhaber.
48 (No. 48.) *Communicability of Bovine Tuberculosis to Man. R. Koch.—Uebertragbarkeit der Rindertuberkulose auf den Menschen.
49 Beiträge zur Chemie der Chloroform-Sauerstoff- (oxygen) Narkose. E. Falk.
50 Esophagus-Carcinom welche unter dem Bild eines Aortenaneurysmas verliefen. M. Litten.
51 Selective Work of Digestive Glands. L. Popielski.—Ueber die Zweckmässigkeit in der Arbeit der Verdauungsdrüsen.
52 Benignes Magen-Adenoma ex ulcere peptico. Albu.
53 *Zur Früh- (early) Diagnose des Icterus. J. Bouma.
54 Ueber Malaria in Ober-Schlesien. H. Weissenburg.
55 Yohimbin (Spiegel) ein neues Alkaloid, Specificum gegen Impotenz. M. Lewitt. Collective Review. (Commenced in No. 47.)
56 Ueber neurasthenische Neuralgien. P. Freund.

Monatsschrift f. Geb. und Gyn. (Berlin), xvi.

57 (October Ergänzungsheft.) *Die Indicationen zur künstlichen Unterbrechung der Schwangerschaft (interruption of pregnancy) wegen Nephritis. M. Hofmeier.
58 *Artificial Delivery on Account of Internal Diseases. F. Schauta.—Die Einleitung der Geburt wegen innerer Erkrankungen.
59 *Die Hysterectomie in der Behandlung der puerperalen Infection. Fehling.
60 *Ibid. Leopold.
61 *Ueber Tuberculose des weiblichen (female) Sexual-Organe und des Peritoneums. J. Veit.
62 *Ueber Genital-Tuberculose. A. Martin.
63 *Ibid. J. A. Amann, Jr.
64 *Die chir. Behandlung des Uterus-Carcinoms. E. Wertheim.
65 Congress Reports: Internat. Gynecology and Naturforscher.

Muenchener Med. Wochenschrift, November 11 and 18.

66 (No. 45.) Relations between Pigments of Blood and Plants. Nadine Sieber-Schumoff.—M. v. Nencki's Untersuchungen über den Blutfarbstoff und dessen Beziehungen zum Blattfarbstoff.
67 The Carbohydrates of the Albuminoids of the Serum. L. Langstein.—Die Kohlehydrate der Eiweisskörper des Blutserums.
68 Zur Kenntniss der rhinogenen purulenten Meningitis und Cerebrospinal-Meningitis. T. Struppler.
69 Ueber Aristochin, ein geschmackloses (tasteless) Chinin-Derivat. H. Stursberg.
70 *Ueber den Wert (value) der Cryoscopie zur diagnose des Todes durch Ertrinken (death from drowning). Revenstorf.
71 Zur Vermeidung (avoidance) der Hematom-Bildung nach Küstner's suprasymphysärem Kreuz-Schnitt (sacral incision). K. Heil.
72 Fall von croupöser Pneumonie und Sepsis, hervorgerufen durch den Pneumo-bacillus Friedländer. E. Philippi.
73 Fall von leutischer doppelseitiger Posticus-Lähmung (paralysis) mit Ausgang in Heilung. F. Steinhaus.
74 Fall von Lobar-Pneumonie mit consecutivem Pemphigus acutus, bei einem 2½ jähr. Kinde. O. Moos.
75 Stichwunde (stab wound) in der Niere (kidney). Tubenthal.
76 Fall von congen. Diabetes insipidus kombiniert mit nach Insolation hinzugetretener Epilepsie. Lichtwitz, Jr.
77 (No. 46.) Ueber Serum-Agglutinine. K. Landsteiner.
78 *The So-called "Hardening" of Children. Hecker.—Die sogen. Abhärtung der Kinder.
79 *Cinnamic Acid in Tuberculosis. H. Riegner.—Einige Bemerkungen über die Behandlung tuberkulöser Erkrankungen mit zimtsaurem Natron nach Landerer.
80 *Ueber Urethritis gonorrhoica bei Kindern männlichen Geschlechts. Fischer.
81 Abscess in Abdominal Wall Due to Fish Bone Perforating Intestine. A. Wagner.—Entzündlicher Bauchdeckentumor, etc., hervorgerufen durch einen aus dem Darm durchgebrochenen Fremdkörper.
82 Paracelsus und seine Reformation. K. Baas.

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83 Estimation of Nitrogenous Substances in Urine. R. v. Jaksch. —Ueber die Verwerthung der stickstoffhaltigen Substanzen im Harn des kranken Menschen.
84 Exp. Untersuchungen über Kohlenhydratsäuren (carbohydrate acids). P. Mayer.
85 *Serum Behandlung bei acutem und chron. Gelenk- (articular) Rheumatismus. Menzer.
86 Ueber die Resistenz der rothen Blutkörperchen (red corpuscles) gegen hypoisotonischen NaCl-Lösungen (saline solutions) bei Magenkrebs (gastric ulcer). G. Lange.
87 *Ueber spontane Levulosurie und Levulosaemie. H. Rosin and L. Laband.
88 (Nos. 3 and 4.) Ueber die experimentelle Erzeugung (production) von parasitären Myxomyceten Geschwülsten (tumors) vermittelst Impfung (by means of inoculation) von Plasmodiophora brassica. W. Podwyssotzki.
89 Ueber Einschlüsse (inclusions) in Blasentumoren. L. Michaelis and C. Gutmann.
90 Neuere Streitfragen (disputed points) aus dem Gebiet der Hematologie. A. Pappenheim.
91 Ueber Anticomplemente und Antiamboceptoren normaler Sera und path. Exsudate. H. T. Marshall and J. Morgenroth.
92 Ueber die chem. Zussammensetzung (composition) des chlorotischen Blutes (blood). F. Erben.
93 Fall von Adams-Stokes'schen Krankheit. B. Lewy.

Zeitschrift f. Orthopadische Chirurgie (Stuttgart), 4.

94 *Ueber die congenitale Hüft- (hip) Luxation. L. Heusner.
95 Ueber paralytische Luxationen. V. Martin.
96 Ueber Pes pronatus s. abductus und seine Messung (measurement). K. Nieny.
97 Fall von congen. Defect der Fibula rechts, verbunden mit congen. Luxation des Talus links. O. Schmidt.
98 Platfuss (flatfoot) und Skoliose. S. Loebel.
99 Changes in Growth of Vertebræ After Spondylitis tuberculosa. O. Jalowiechki.—Ueber Wachsthumsveränderungen an den Wirbeln nach Spondylitis tub.
100 Ueber die Valgus-Theorie Duchenne's de Boulogne. M. Van der Beek.
101 Ueber die Predilections-Stellen (points) der skoliotischen Abbiegungen (curvature) an der Wirbelsäule nach Beobachtungen an 1140 Skoliosen. W. Schulthess.
102 (Vol. xl, No. 1.) Die Neurogenen Skoliosen. A. Hoffa.
103 Principielles in der Skoliosenfrage. P. Bade.
104 Ueber Skoliose bei Halsrippen (with neck ribs). Garré.
105 Skoliosen-Behandlung mit Zuhilfenahme der Weir-Mitschell-'schen Kur. Hoeftman.
106 Klinische Beobachtungen über Form-Verschiedenheiten (differences in shape) an 1137 Skoliosen. W. Schulthess.
107 Fall von congen. Hochstand (elevation) der Scapula. Froelich.
108 Laws of Static Weight Deformities. A. Schanz.—Die Bildungsgesete der statischen Belastungsdeformitäten.
109 *Zur Functions-Verbesserung (improvement) defecter Hüftgelenke (hip joints). A. Lorenz.
110 *Dauererfolge (permanent successes) des Redressements des spondylitischen Gibbus. O. Vulpius.
111 Ueber experimentelle Deformitäten. H. Maass.
112 Ueber das forcirte Redressement des Genu valgum. A. Codivilla.
113 Zur Behandlung des Genu valgum. Hoeftman.
114 Zwei Fälle von ischamischer Contractur der Hand-Beugemuskeln geheilt durch Verkürzung der Vorderarmknochen (cured by shortening the bones of forearm). Henle.
115 Apparate zur Retention des reponirten Schenkelkopfes (reduced head of femur) bei congen. Luxation des Hüftgelenks (hip joint). M. Schede.
116 Die klinische Etiologie des Platfusses (flatfoot). J. Riedinger.
117 Zur Etiologie des congen. Klumpfusses (clubfoot). O. Vulpius.
118 Der Bau (structure) des Neger-Fusses. M. Herz.
119 Zur Casuistik des hysterischen Spitzfusses (talipes equinus). O. Vulpius.
120 Ueber Pes calcaneus traumaticus. A. Wittek.
121 Einige neuen orthonädischen Apparate. Heusner.
122 Die Circumferenz-Osteotomie. M. Reiner.
123 Ueber Spondylitis gummosa. Joachimsthal.
124 Permanent Results in Treatment of Congenital Dislocation of Hip. G. Drehmann.—Dauerresultate bei der Behandlung der angeb. Hüftluxation.
125 Early Massage in Treatment of Fractured Joints. G. Drehmann.—Ueber frühzeitige Massage-Behandlung einiger Gelenk-Fracturen.
126 Ueber congenitalen Femur-Defect. G. Drehmann.
127 New Operative Treatment of Severe Cases of Genu Valgum. H. Krukenberg.—Ueber ein neues Operationsverfahren zur Behandlung schwerer Falle von Genu valgum.

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1. **Stomach Dilatation.**—Atony and dilatation of the stomach, according to Saundby, are much more frequent than generally supposed. The powder recommended by Dr. Eric Meinert of Dresden, containing 120 gr. of sodium bicarbonate and 90 gr. of tartaric acid, given in succession, dissolved separately in water, is much more effective in certain conditions than the old stomach powder of 15 to 30 grains of each. He thinks that dilatation is nearly twice as frequent in women as in men, and, according to the alleged causes, neurasthenia and dyspepsia seem to be the leading etiologic factors. He grades the cases as slight, marked and extreme; the slight where the greater curvature does not come below the level of the anterior superior spine, below that line and half way to the pubis he calls marked dilatation, while anything lower than that he regards as extreme. If the greater curvature does not descend below the umbilicus he does not regard it as a case of dilatation. The various symptoms, pain, vomiting, loss of weight, constipation, flatulence, the condition of the tongue, etc., are noted. He concludes:

1. That atonic dilatation of the stomach is a common condition; that it occurs about twice as often in women as in men, and most frequently between the ages of 20 and 50, and that it is ten times more common than dilatation from obstruction, which generally occurs after 30 years of age. 2. That it is caused by neurasthenia or by any prolonged debiliating illness which may set up neurasthenia. 3. That there are no characteristic symptoms, and no correspondence exists between the amount of dilatation and the severity of the symptoms. 4. That the diagnosis can, in the majority of cases, only be made by the distension of the stomach by CO_2, evolved from 120 gr. of sodium bicarbonate and 90 gr. of tartaric or citric acid. 5. That the prognosis does not depend on the extent of dilatation, but rather on the duration of the symptoms, the general health of the patient and the effect of treatment. 6. The treatment must be mainly that of neurasthenia, supplemented by the use of such drugs and diet as may be indicated by complications, for example, gastritis. 7. Gastroenterostomy often fails to relieve these cases.

2. **Stomach Concretions.**—Fenwick says that concretions of vegetable matter are much less common than hair balls, and that stones or gastroliths are extremely rare and generally occur in men who have swallowed varnish or like substances. They are usually composed of hardened shellac. Hair balls are most common; there are 24 cases recorded. They generally occur in females, only one case in a male being reported. The youngest was 18 years of age, and the oldest 34 at the time of death. It never seemed to be associated with mental disease, and in several cases it was expressly stated that there was no hysteria or special emotionalism. In the majority of cases it originated in the habit of young girls holding their hair in their mouths while reading or biting the hair when excited. At other times it seemed to be due to the habit that some people have of filling their mouths with any substance with which they happen to be working or it might be due to some eccentricity of which the patient is herself unconscious. In one patient it was the custom to clean her comb with her fingers and then put the little bunch of hair into her mouth instead of disposing of it otherwise. Unless the concretions arrive at a considerable size the symptoms may be slight, if any, but as a rule, however, sooner or later intractable dyspepsia appears, the pain becomes localized to the epigastrium or left hypochrondrium and is increased by pressure, and vomiting is seldom absent. Anemia is present, appetite variable, and breath offensive. Diarrhea and constipation alternate. There is a well-marked abdominal tumor often large enough to be visible through the parietes, sometimes globular or outlining the stomach. Its principal feature is its extreme mobility. The duration of the disease averages probably about fifteen years. In most of the recorded cases the concretion was mistaken for malignant growth, but the age and sex of the patient, the duration of the complaint and the physical characteristics of the tumor are the best guide against such errors. Malignant disease in early life is rapidly fatal, but concretions are accompanied for a long time by dyspeptic symptoms and seldom prove fatal in less than ten years. The character also of the tumor is different. If gastric symptoms are lacking there may be confusion with enlarged spleen, floating kidney or a fecal accumulation, and especially if the stomach happens to be dislocated. If the tumor is small it may be possible to bring it up with an emetic, but there is always some danger in this because of frequent secondary ulceration of the stomach or duodenum. Surgery is the only resort if the tumor is large.

3. **Dyspepsia.**—Rankin describes the acute, atonic, acid and nervous forms of dyspepsia, and gives a diet treatment for the chronic disorders: Breakfast: dry toast or stale bread with butter, milk and cocoa, a boiled or poached egg or white fish; luncheon: fish, fowl, or freshly-cooked meats, a little smoothly mashed potato or purée of vegetables, stale bread or toast, and some form of farinaceous pudding made with milk, or fresh stewed fruit, sweetened with saccharin. In the afternoon he would allow a little stale bread, or toast, with butter and milk or cocoa or tea infused in boiling milk. Dinner should be similar to luncheon, but in the early stages it is safest to forbid red

meat, substituting sweetbread, tripe, calf's head or game. Sleep is often promoted by bread and milk. If stimulants are taken at all, he would only give a little whisky, well diluted in one of the ordinary table waters after luncheon or a little light wine. In certain cases, especially the nervous variety, best results are obtained by giving the food in small quantities at a time more frequently repeated. He emphasizes that the mouth should be carefully inspected, and any decayed teeth attended to. In long-standing cases lavage of the stomach may be of advantage. For antisepsis he has found carbolic acid best. In atonic dyspepsia he finds that in most cases relief is afforded by the administration of a combination of dilute hydrochloric acid, pure carbolic acid, strychnin and ginger, followed by tonic drugs. The use of alkalies before meals to promote acid secretions is only attended with good results in mild and recent cases, and seldom succeeds so well as the acid method described. In acid dyspepsia alkalies are specially indicated, and should be administered two or three hours after food and in Rankin's experience are more efficient if combined with an antiseptic, of which bismuth is one of the best. He would give bismuth salicylate in doses of 10 to 15 gr. or else combine the carbonate of bismuth in 30 to 40 gr. doses, either with salol in 10-gr. doses, sodium sulphocarbolate in 15-gr. doses, or carbolic acid in 2-gr. doses. To these may be added strychnin, ginger or ammonia as before, together with a suitable quantity of some morphin solution if there is much pain. Bismuth salicylate is another valuable remedy. When acidity gains the upper hand, despite the bismuth mixture, sipping a wineglassful of very hot water with 10 or 15 gr. of sodium bicarbonate dissolved may give temporary relief. If farinaceous substances predominate in the diet two or three ounces of malt infusion should be taken with each meal. Whenever there is an excess of HCl in the stomach the diastatic action of the saliva is prematurely arrested, and malt given in this way assists Nature to dispose of the starch. When the urgent symptoms are relieved in atonic dyspepsia, tonics still in combination with antiseptics should be ordered. It is often of advantage after the hyperacidity is overcome to give one or other of the mineral acids combined as for atonic cases, but given before food. In nervous dyspepsia it is desirable to increase the quantity and variety of food as rapidly as possible and get the patient to take as much fat in a digestible form as he can assimilate. The stomach discomfort depends on the nerve exhaustion, and is only a local manifestation of the constitutional state, and the routine methods of acids and alkalies therefore fail. Fermentative processes, however, play a considerable part and antiseptics should be administered. The most reliable drugs are zinc valerianate or arsenic, and he suggests the following formula:

R. Zinc valerianate	3 gr.
Pure carbolic acid	2 gr.
Arsenious acid	1/40 gr.
Extract of cannabis indica	¼ gr.

One such capsule to be taken after food three times a day.

Rest from physical work is imperative; change of surroundings, cheerful society, massage and hydrotherapy are advisable.

7. **Micro-organisms in Vaginal Secretions.**—Bergholm made bacteriologic examination of the vaginal secretion of forty pregnant women at Helsingfors. The reaction was always acid. No micro-organisms pathogenic for animals could be found in any case, no pyogenic staphylococci or streptococci nor colon bacilli.

8. **Deportation of Chorionic Villi.**—Poten concludes from study of seven pregnant uteri that the villi may be torn off and swept away to other parts of the body, in the course of a normal pregnancy without pathologic sequelæ.

9. **Obstetrics and Gynecology in Sixth Century.**—Wegschneider has been preparing a German translation of a work by a Byzantine physician who flourished about 540 A. D. and cites many interesting extracts from the part devoted to obstetrics and gynecology. The original Greek manuscript was not published in book form until 1892.

13. **Hydrorrhea Gravidarum.**—Fleck describes a case in which the child retained the fetal attitude for months and had not attained the complete use of its limbs when last seen. The knee and elbow were particularly stiff. This condition was evidently the result of the cramped position in the uterus and may explain certain cases of clubfoot. The symptoms of hydrorrhea usually develop suddenly about the third month, and suggest impending abortion, but the fetus continues its development outside the decidua. The hemorrhages observed from time to time are probably the result of the movements of the fetus eroding the unprotected uterine walls.

14. **Extrauterine Pregnancy.**—Fernwald reports 17 cases, with 4 deaths. Death occurred the nineteenth day in one case from embolism and one patient was moribund when received. There was pyosalpinx on the other side and fatty degeneration of all the organs in the two other fatal cases.

16. **Ureter Fistula or Injury.**—Stoeckel reported two years ago 8 cases and now adds 7 more. He finds that the ureter is most liable to be injured during vaginal extirpation of a carcinoma of the cervix. He reviews the etiology, symptoms, diagnosis, prophylaxis and treatment. He implanted the ureter in the bladder in 5 cases, by the intraperitoneal route. The results have been excellent. He describes all his cases in detail.

19. **Placenta Previa.**—Nearly 200 pages are devoted to this comprehensive study of placenta previa as observed 101 times, or in 3.07 per cent. of 3085 childbirths between 1892 and 1900. Multiparæ were the subjects in 76.15 per cent. and the symptoms were severe in all, while the uniparæ presented only mild cases. Strassmann studies his material from every point of view and draws the conclusion that obstetricians and physicians must strive to prevent placenta previa by ensuring perfect involution of the uterus. Conception should not recur until the uterus announces by the return of menstruation that it has regained full functional capacity. Nursing should be promoted on account of its influence on involution. After weaning the child there should be no conception until menstruation has been re-established. These precautions should be impressed with special urgency on pluriparæ, and particularly after the birth of twins or the occurrence of placenta previa. It may be possible by prophylaxis along these lines to prevent the occurrence of placenta previa in many instances.

24. **Cinnamic Acid in Treatment of Tuberculosis.**—Krause has been using cinnamic acid according to Landerer's directions during the last two and a half years. He has now a record of 21 cases followed for a sufficient length of time, and the results compel him to commend hetol as a most valuable means for the treatment of tuberculosis of the lungs and larynx. He at first attributed the benefits derived to suggestion as the main factor. But he has found a means of testing the physiologic and anatomic factors at work. This is the study of scraps curetted from a tuberculous lesion in the larynx, as compared with those from patients without cinnamic acid treatment. The tubercles under hetol commenced to grow smaller in the first weeks of treatment, and the leucocytes were found exceptionally numerous at all stages. Young connective tissue soon made its appearance in the tubercle, and in time the whole structure, while retaining its shape, grew smaller and became transformed more or less completely into connective tissue. Notable clinical improvement was soon manifest in every case. In one instance a febrile patient whose temperature had persisted high during several months at a sanatorium found the temperature normal in the first week of hetol treatment and bed rest. Not infrequently all the pathological manifestations vanish except for slight modifications in the breathing sounds. In other cases the portions of lung involved become indurated, and in the severe cases the coarse moist râles vanish and the breathing becomes freer and easier. This method of treatment is peculiarly advantageous for cases too advanced for sanatorium treatment as the disease may be arrested and life prolonged. It must be continued for months or even years in some cases. The number of leucocytes rapidly and progressively increases under the hetol, but not unless injected directly into a vein. He gives the details of his 21 cases. All were improved, 13 nearly and 4 completely cured.

25. **Causes of Primary Glaucoma.**—Levinsohn ascribes primary glaucoma to a solid enlargement of the ciliary body, especially of its processes. The early clinical symptoms indi-

cate such a lesion, and sections from an eye with subacute glaucoma which he has recently had occasion to study, and others with absolute glaucoma, confirm this assumption.

27. **Photography of the Fundus of the Eye.**—The photograph is taken by means of a combination of lenses and a flashlight. The results are striking, as shown by photographs of the eyes of a cat.

28. **Temporary Partial Amaurosis and Migraine.**—Jolly lost an eye from a traumatism in childhood. During his student life he suffered from migraine. In the last few years the remaining eye has exhibited typical attacks of teichopsia, accompanied by migraine. Study of his symptoms has convinced him that this pure unilateral "flimmer" scotoma originates in the optic nerve or the retina of the eye involved.

30. **Virchow's Last Illness.**—Körte was Virchow's physician. He mentions that when Virchow fell in alighting from a street car one evening last winter (the company claim that he stepped off before the car had quite stopped), the neck of the femur was broken, but this soon healed admirably under appropriate treatment. But the abrupt change in his active life made necessary by the treatment of the fracture rendered him restless and impatient and interfered with sleep, and symptoms of senile degeneration gradually developed. The direct cause of death was a myocarditis, probably atheromatosis of the coronaries, possibly combined with inflammatory processes in the kidneys from a transient cystitis. As long as his mind was clear he confidently expected soon to resume his work. A radiogram of the healed fracture is appended.

32. **Clinical Value of Ehrlich's Dimethyl Reaction.**—In the tests of this reaction described, it was found that it occurred only in severe forms of disease, but was not specific for any one. It is valuable, as it indicates an aggravation of certain special toxic, or infectious-toxic diseases. It parallels the exacerbation. In Kaziczkowsky's experience with enteritis, the test was positive only in cases of tubercular origin.

36. **Local Application of Heat.**—Gross describes a modification of the thermophore, which Quincke introduced into use in 1896. The present device is a tin tube wound back and forth two or three times and fastened to a sheet of asbestos. The tube is connected with a small closed vessel of water over a lamp, one end entering at the top and the other at the bottom of the boiler. There is thus a continuous circulation of warm water through the coil of tubing. These thermophores may be used to keep bags filled with fine sand at an even temperature, and this combination is proving remarkably beneficial in cases of subacute sciatica, lumbago, old spondylitis and especially of gastric ulcers. To prevent the sand from shifting in the bags they can be basted to divide the bag into four long pockets, but it is more pliable without this. The local sweating is one of the benefits of the measure, as it promotes elimination and absorption of pathologic products. In the treatment of chronic exudates the weight of the sandbag may be a factor in the benefit derived.

38. **Prurigo Lymphatica.**—Buschke describes in detail three cases observed at Lesser's clinic in which prurigo was evidently connected with an affection of the lymphatic system. The patients were 22 to 58 years old and the localization was more diffuse than in Hebra's prurigo. In all the cases certain lymph glands and the spleen were enlarged, but there was no lymphocytosis. Otherwise the cases suggested pseudoleukemia. There were no indications of tuberculosis. A few similar cases have been reported with and without hypertrophy of the spleen. In one published by Blaschko the prurigo developed after a lymphosarcoma in the shoulder had been noticed, and it retrogressed after the neoplasm had been extirpated. There was recurrence later of the growth in the cicatrix and the prurigo and itching reappeared with it. Examination of 5 patients with classic prurigo and 6 with scrofula failed to disclose anything abnormal in the glands or spleen. Lymphatic prurigo is probably caused by some abnormal cell products. The abnormal chemistry of the cells may be a congenital condition, which would explain its rebellious and recurring character. Further study is needed of the cutaneous sensory neuroses observed associated with internal affections, such as internal cancer, chronic intoxications, echinococcus and recent malaria, to note whether the dermatosis belongs to the prurigo or the urticaria group. The lymphatic prurigo described above has never been examined postmortem. There is a possibility that it may yet prove to be a tuberculous affection.

39. **Inoculation Metastasis of Cancer.**—Brieger has seen a case similar to that described by Olshausen in No. 42, and reports recent attempts to inoculate animals with carcinoma. He prepared the animals by injections of human blood as for the biologic blood test, and then transplanted still warm carcinoma tissue into the anterior chamber. Pannus developed after this transplantation in a rabbit that had been injected previously with 60 to 70 c.c. of blood from human placentæ. The pannus gradually retrogressed, and the carcinoma tissue was dissolved until after three months there is now merely a slight defect in the cornea with no traces of a pathologic lesion. In other animals prepared in the same way scraps of chancre implanted in the cornea were similarly absorbed without a reaction. Experiments in this line on dogs and monkeys are now in progress.

40. **Malignant Lymphoma.**—A case of lymphoma malignum associated with tuberculosis is described by Spijarny, confirmed by the autopsy findings. The general appearance and heredity suggested tuberculosis, but no symptoms indicated it until a few months later, when the patient succumbed to miliary tuberculosis. The clinical picture and the microscope confirmed the diagnosis of lymphoma malignum, although the swollen glands became reduced in size under energetic arsenic treatment. Several writers have reported the coincidence of lymphoma malignum and tuberculosis.

41. **Hereditary Relations Between Tuberculosis and Cancer.**—Aronsohn has been investigating the heredity of his tuberculous patients, and has been much impressed with the fact that in the majority of cases in which no tuberculous hereditary antecedents could be discovered, one of the parents had had a cancerous affection. He describes the particulars of 20 such cases, and adds one in which a carcinoma of the throat occurred in a patient in whose heredity neither tuberculosis nor cancer could be traced, but the patient's two wives had both been tuberculous. He believes that conjugal tuberculosis usually affects the throat. The connection between lupus and carcinoma has been recently emphasized by Ashihara, who collected 126 cases of carcinoma developing on lupus, with 3 personally observed at the Breslau clinic. Lupus, Aronsohn suggests, may be to a certain extent the connecting link between cancer and tuberculosis. A lupous infiltration is one form of tuberculosis, and at the same time it may become transformed into a cancerous growth under certain unknown conditions. In this connection he cites Williams' observation that cancerous tumors disappear in the course of acute phthisis, while, on the other hand, carcinoma may begin as tuberculosis ceases. He found fresh tubercular lesions only once at the autopsies of 136 carcinoma subjects, while in 12 per cent. old tubercular foci were conspicuous. Megay has published a case of acute miliary carcinosis, terminating fatally in ten days, which resembled in many respects acute miliary tuberculosis. A number of cases have been reported in which carcinoma developed on the basis of a tuberculous lesion in the intestine or esophagus. Statistics indicate that there is heredity of cancer in about 10 per cent. of all cases, and Aronsohn observed tuberculous offspring from cancerous parents, in the same proportion. Jacubash noted cancer in the parents in 6 per cent. of 1500 tuberculous patients, and Riffel found 19 such cases in 46 families. The question as to the frequency of cancer in the children of tuberculous parents is still unstudied. Arguments in favor of the inherited character of the tendency to tuberculosis or cancer are the tubercular cerebral lesions found in very young children, also the fungous tubercular processes in children with no process in the lungs, while, on the other hand, persons with pulmonary affections seldom have these or any tuberculous bone or joint lesion. Billroth pointed out that persons with joint and bone affections usually die from exhaustion, and no tuberculous lesions are found in the internal

organs, but merely extensive amyloid degeneration. These autopsy findings are explainable by the assumption of congenital infection and not otherwise. If it should be proved that cancerous parents beget tuberculous children, then there is not only the inheritance of a predisposition to the reception of microbes, but every probability that direct congenital infection has taken place, and that the parasite of one disease, inherited by the child, either creates some special predisposition for the other, or else becomes transformed so as to produce it. If so, then we must assume that the phthisic diathesis may be inherited not only from phthisic, but also from cancerous parents, and that carcinoma, lupus and tuberculosis belong etiologically to the same family.

44. **Treatment of Empyema.**—Israel makes a vertical branch to the usual transverse incision for evacuating empyema. This enables the empyema to be drained at the lowest point. There is no stagnation, and healing proceeded with remarkable rapidity in the ten cases thus treated. He carries the incision down to the eleventh rib, resecting a portion of the tenth. The annoying tendency to coughing is avoided. Hemorrhage is more readily controlled and the cavity can be irrigated more easily.

48. **Communicability of Bovine Tuberculosis to Man.**—In this address, which was the feature of the last day of the Tuberculosis Conference, Koch reviews the various cases of supposed transmission to man of bovine tuberculosis, and shows that none of them will bear criticism. He proclaims that no case can be accepted as evidence which has not been examined postmortem, with certainty of tuberculosis of the udders of the cow giving the milk, and with the history of other persons using the same milk, and exclusion of all other sources of infection. On the other hand, no cases can be accepted as contrary evidence without demonstration of udder tuberculosis, sufficiently prolonged observation of the persons and testimony as to whether the milk was boiled before using. For the present he reiterates that the injurious influence on man of bovine tuberculosis milk and its products is not proven. He affirms that the principal, and possibly even the only, source of infection of man is a person with tuberculosis who, in consequence of the unfavorable environment or his disregard of the simplest rules for the prevention of the infection of others, may thus prove dangerous for those around him. Instead of wasting our efforts in the superfluous task of preventing infection from bovine tuberculosis, attention should be concentrated more than hitherto on the prevention of infection from man to man in the conditions mentioned. Koch referred to Baumgarten's inoculations of a number of cancer subjects with bovine tuberculosis as important evidence in favor of its non-communicability to man. Koch remarked in conclusion that it is more interesting to seek for infection than for cases of resistance to infection, but it is necessary to collect information in regard to cows with tuberculosis of the udders, trace the history of the persons who have used the milk, and follow them and learn whether they became affected with tuberculosis in a year or two, and what form it assumed.

53. **Early Diagnosis of Icterus.**—Bouma recommends testing the blood, serum and urine for icterus in suspicious cases, even when they do not show the presence of bile to the eye. This can readily be done with a modification of Hammarsten's reaction, which he describes.

57. **Indications for Interruption of Pregnancy in Nephritis.**—Hofmeier thinks that there should be no question of inducing premature delivery or abortion in acute nephritis, as there is a possibility of a favorable termination, and as the interruption of the pregnancy has no influence in preventing the threatening eclampsia. In the chronic form and in "pregnancy kidney," the pregnancy should be interrupted if, notwithstanding appropriate medication in the former case and dieting in the latter, the condition grows steadily worse.

58. **Ibid, in Internal Diseases.**—Schauta reviews the entire list of internal affections and proclaims the conclusions for each in turn as derived from his own experience and that of others in respect to the advisability of interrupting the pregnancy. In case of pulmonary tuberculosis or mitral stenosis, he would not advocate interfering with the pregnancy except under certain conditions, while certain other affections are an absolute contraindication to it. The latter include the psychoses, pneumonia, pleuritis, pneumothorax, the acute infectious diseases, measles, scarlet fever, variola, erysipelas, diphtheria, dysentery, and the genital tumors, myomata, cysts, carcinoma. In cases of serious polyneuritis, tetany, nephritis and hyperemesis, the chances are that the child is doomed under any circumstances, while the mother may recover if delivered from the stress of pregnancy. In other affections, such as the chorea of pregnancy, etc., the child may be saved by premature delivery, and is in danger without it. In inevitably fatal cases of cerebral tumors or hemorrhage, miliary tuberculosis or pernicious anemia, it may be the only means to deliver the child alive. The child should be delivered in case of nephritis so soon as it is viable, or severe general disturbances are liable to follow. In the interest of the child accouchement forcé gives better results in moribunda than Cesarean section. The amaurosis of pregnancy requires energetic treatment and retinitis, immediate premature delivery.

59. **Hysterectomy in Puerperal Infections.**—Fehling agrees with the majority that hysterectomy is indicated in puerperal infection only when the latter is restricted exclusively to the uterus. In exceptional cases of puerperal uterine metro phlebitis (pyemia), hysterectomy may prove useful combined with ligation and extirpation of the thrombosed veins in the broad ligaments and of the spermatica or of the latter alone.

60. IBID.—Leopold's address was reviewed in THE JOURNAL of December 6, p. 1491.

61. **Tuberculosis of Female Sexual Organs and Peritoneum.**—Veit summarizes his address delivered at the recent International Congress of Gynecology in the statements that peritoneal tuberculosis is always secondary, but the genital may be either primary or secondary, or merely a tubercular lesion in the peritoneal investment of the genitalia. Peritonitis with nodules, not referable to an ovarian tumor or carcinoma, is generally tuberculous. Peritoneal tuberculosis may exceptionally retrogress spontaneously, but can always be benefited by a laparotomy. The few cases of failure to cure that have been recorded were generally those with advanced tuberculosis in other organs. Recent cases should, therefore, be operated on without delay as soon as the affection causes trouble, and the intervention should be repeated if necessary. Chronic cases should be kept under supervision, and if there is no tendency to spontaneous retrogression, should be operated on. The intervention should be simply a laparotomy in the linea alba, complete evacuation of fluid and closure of the abdomen. If at the same time a completely isolated genital tuberculous lesion is discovered, the intervention should conclude with the radical operation. Veit is inclined to attribute the favorable result of the intervention to the influence of the serum, normal or with acquired antitoxic power. Three-fourths of all cases on record have been cured locally by the laparotomy, but tuberculous lesions elsewhere are not affected by it.

62. IBID.—Martin is convinced that genital tuberculosis is much more common among women than is generally accepted. There are no pathognomonic symptoms of it, but inflammatory processes in the genitalia with tubercular lesions elsewhere should arouse suspicion. Chronic inflammatory processes evidently create a predisposition to it, as also dystrophy and hypoplasia. He believes that the infection is generally derived from the intestines, by way of the glands or peritoneum, or possibly through the blood. Several near points are usually affected at the same time, with sound intervals between them. The primary lesion may heal while the secondary infection continues a progressive course.

63. IBID.—Amann attributes the source of genital tuberculosis in the female to primarily affected bronchial glands as the only origin thus far positively established by anatomic research. The lung or bronchial tubes are almost invariably simultaneously involved. Women are affected with genital tuberculosis in 20 per cent. and men in 3 per cent. of all cases.

Hypoplasia of the genital organs enhances the predisposition to tubercular lesions, also chronic inflammatory processes and the puerperal state. The tube is almost invariably the site of the first lesion. He thinks that primary infection from without of the female genitalia is extremely doubtful. No findings should be considered in the study of the subject except those of autopsies in which careful search has been made for hidden foci. There are many chances for infection by way of the air-passages in living with a tuberculous husband. Some of the most prominent pathologic anatomists affirm that they have never encountered an undoubted case of primary genital tuberculosis in the female adult. A primary tubercular lesion on the external genitalia or vagina has never been observed to date. Tuberculosis of the urinary passages is always descending. The kidney is first affected by way of the blood.

64. **Surgical Treatment of Uterine Carcinoma.**—Wertheim's address was reviewed in THE JOURNAL of December 6, p. 1491.

70. **Cryoscopy in Diagnosis of Death from Drowning.**—It is a well-established fact that in drowning the water drawn into the lungs finds its way into the capillaries and thus into the blood, diluting it to a notable extent. Carrara last year called attention to the difference in the concentration of the blood in the left heart, thus diluted in such cases, and in the right heart, which does not have time to feel the effect of this dilution. By determining the freezing point of the contents of the halves of the heart separately, a marked difference between the two halves is evidence that the subject died from drowning, as he has been unable to discover any other pathologic condition in which similar conditions prevail. Carrara's research was mainly on dogs, but Revenstorf has found in his experience at the Harbor Hospital at Hamburg that his conclusions are equally true in regard to human beings. In 5 out of 12 cases of drowning the difference between the freezing point of the blood in the left heart and the right was as .48 to .68; .28 to .55, etc. In the other cadavers the difference was merely .62 to .67; .77 to .81, etc. The negative result of the test, therefore, does not exclude drowning, but the positive result is absolute proof of it, and is a valuable aid in forensic cases, even for newborn infants. In none of his cases in which the test was positive could the slightest dilution be determined in the right heart. The difference between the two hearts ranged from .10 to .27 of a degree. The diagnosis is possible by this means in certain cases from mere inspection of the cadaver, before the autopsy. Advanced putrefaction will detract from its reliability as the freezing point of the blood in the right heart falls more rapidly than that of the left. [The figures refer to the Centigrade thermometer.—ED.]

78. **The So-Called Hardening of Children.**—Hecker says that the cold bathing and sleeping in cold rooms which are applied so vigorously by many families as a means of hardening their children, have in reality the opposite effect in many cases. Their physicians are like the fishermen in the fairy tale who were terrified at the sight of the genii they had invoked. He has been examining 34 children brought up on these principles and finds that the systematic hardening process very frequently entails an exaggerated tendency to colds, sore throat, and respiratory affections, also to severe anemia and general nervous disturbances, neurasthenia, loss of appetite, restless sleep and irritability, with change of character. It may also induce acute and chronic recurring intestinal affections, and aggravate the course of infectious diseases, especially of whooping cough. He reports a number of cases in detail to sustain these assertions. Infants should always be kept warm at all times, he says, but after a child is a year old the hardening measures may be commenced, though very gently and gradually and strictly individualized. No furs should be worn, and the throat should not be wrapped up. During northeast winds, extreme cold and snowstorms, children should be kept indoors. The windows of rooms where young children sleep should not be kept wide open except in summer, and in a mild climate. If the child shrinks from a cold sponge bath, it should be applied very cautiously, and even pleasure in the bath is not an absolute criterion that it may not have injurious after-effects. Cold sponging is better than cold douches for children, and once a day is enough. Cold water should not be used for children without a preceding medical examination, especially if they are nervous or anemic.

79. **Cinnamic Acid in Tuberculosis.**—Riegner has treated 9 cases of tuberculosis with cinnamic acid according to Landerer's directions, and has observed 12 others treated by a colleague. The results by the intravenous route were very good and encourage further treatment. Intramuscular injections failed to disclose any beneficial effect. He thinks that suggestion has something to do with the results, but only as a subordinate factor.

80. **Gonorrheal Urethritis in Boys.**—Fischer adds 2 to the 69 cases on record. The course of the infection seems to be more rapidly acute than in adults, and the posterior portion of the urethra is soon involved. Strictures are not infrequent. The infection was extragenital in about two-thirds of the cases. Boys of about 6 were in the majority.

85. **Serum Treatment of Articular Rheumatism at Senator's Clinic.**—Menzer reports treatment of 33 patients with a serum made by inoculating animals with streptococci derived from the tonsils of patients with articular rheumatism. They were usually found unassociated with other bacteria. He is convinced that the bacteria in the nasopharynx may acquire such virulence under certain circumstances that they are able to overcome the resistance of the lymphatic apparatus in the throat, and penetrate into the blood. Here they induce metastatic affections at the points which are anatomically less capable of resistance, as consisting merely of fibrous tissue, with few cells. The joints, serous membranes and endocardium are prominent examples of this poverty in cells, and these are the points most frequently assailed. The reaction of the organism is manifested by local hyperemia, swelling and pain. The infection does not jump from joint to joint, but the reaction occurs wherever the bacteria encounter feebler resistance and gain a foothold. The new serum is not an antitoxin, but acts by re-enforcing the organism in its struggle against the infection. As the reaction is thus re-enforced the temperature rises and the affected parts become more swollen and painful, but this intensified reaction is brief, and soon conquers the invading streptococci and the patient is cured. It was impossible to immunize animals by means of the serum, as owing to the lack of previous passage of the streptococci through animals they were not virulent enough for this. Menzer proclaims that the results of the serum treatment in 33 cases in which it was applied have been extremely encouraging, and he recommends it for general adoption, although he disclaims the idea that he has found a panacea. In 7 acute cases treated with the serum alone, the joint affection and fever lasted on an average seven and seven and a half days. The patients were allowed to get up the seventeenth day, eight days after all pain and fever had subsided. The heart was clinically normal in all but one case, in which there was a slight systolic murmur. In 4 other acute cases, treated previously with the salicylates without effect, the joint affection and temperature lasted six and six and a half days. The heart was clinically normal when dismissed in 2 cases as also in a fifth case treated at home for eight days with aspirin before serum treatment was instituted. All the above cases convalesced rapidly without relapse. The majority of the joints could be used without pain by the third to fourth day. The fever keeps up longer, and he considers this an advantage over salicylic medication. The latter acts by reducing the reaction on the part of the organism instead of enhancing it like the serum. With salicylic medication the infection is not conquered, and relapses and exacerbations are liable to occur, while under this serum treatment there were no relapses nor exacerbations in any instance after the fever had once declined. Three of the cases were treated at Leyden's clinic.

87. **Levulosuria and Levulosemia.**—Rosin and Laband remark that spontaneous levulosuria may occur with little if any glycosuria, as in a case described. It may also occur in the course of diabetes mellitus, with a considerable amount of

levulose in the circulation, enough to induce rotation to the left. There may also be a large proportion in the urine, but not quite enough to change the rotation. They add that Seliwanoff's reaction is extremely valuable for the study of anomalies in the carbohydrate metabolism. This reaction is the bright red tint that develops when urine is heated with equal parts of fuming hydrochloric acid and a few grains of resorcin. In the case reported it was impossible to influence the levulosuria in an alimentary way.

94. **Congenital Dislocation of Hip.**—Heusner remarks that Lorenz, in 450 reductions of congenital luxation of the hip, has a record of 11 fractures of the neck of the femur, 1 of the pubis, 1 of the ilium, 3 transient paralyses of the perineus nerve and 5 of the crural, with 3 permanent paralyses of the sciatic nerve and one case of gangrene of the leg in a girl of 13, probably due to the unduly tight cast. In several cases Narath's hernia was observed and frequently there has been stiffness from imperfect fitting of the parts of the joint. In only two of the latter cases have there been permanent disturbances. Heusner and Hoffa have not been so fortunate in this respect. The acetabulum can not become shaped to hold the head in the few months of treatment. Altering the shape of the acetabulum is, therefore, not the aim to be striven for, but merely the shriveling of the capsule and musculature to induce the most favorable position for retention. It is, therefore, better to renounce the attempt to secure functional weight-bearing in cases which display a tendency to recurrence of the dislocation. The head is liable to be forced out of its cavity, instead of being pushed into it, if the patient be allowed to use the limb. Ducroquet of Paris has secured better results from the Lorenz method than Lorenz himself, Heusner asserts, as he does not allow his patients to be up and about. The chief merit of Lorenz's method is the extreme abduction which counteracts the injurious influence of the shortened adductors, and the head is brought to the front of the pelvis. But his method does not pay sufficient attention to the anteversion position of the neck and the stretching of the shortened abductors. The tendency of the foot to abduction is the result of the insufficient stretching of these abductor muscles, especially of the gluteus maximus, by this method. The thigh must be held in inward rotation to the utmost possible extent, in order to stretch these muscles. This requires a cast extending below the knee and even including the foot, in order to use the leg as a rotating lever, but Lorenz disregards this point and ends the cast above the knee in order to allow the child to be up and about. He is skeptical as to the necessity of this inward rotation which Lange, Hoffa, Schede and Heusner himself consider so necessary. The danger of redislocation is that of outward rotation, and Schede has inaugurated the latest phase in the treatment of congenital dislocation of the hip joint, by working against this tendency. He uses an extension apparatus, stretching both the sound and the affected leg, with counter-pressure at the perineum with a padded leather band. The legs are drawn far apart and the head of the femur is gradually pulled down on a level with the acetabulum. It is then slowly rotated inward, with strong pressure from behind against the trochanter with the fist, when the head can be heard grinding into its proper place. The Lorenz method of manipulating the capsule is then followed, on an ordinary table, and his cast applied with an abduction splint and leather pelvis girdle later or in case of bilateral luxation, a leather contrivance like swimming trunks, with a screw to exert pressure against the trochanters. Heusner does not agree with Lorenz that it is better to wait until a child is two years old before attempting intervention. He thinks that early infancy, with its energetic growth, offers the best prospects for regeneration, while delay invites rapid aggravation of the deformity. He illustrates the various devices that have been found most useful by himself and others.

109. **Functional Improvement of Defective Hip-Joints.**—Lorenz does not refer to any special affection, but to the various pathologic conditions of the joint from different causes in which the function of the joint is seriously compromised with pain when weight is borne on it. He has been strikingly successful in such cases, he states, by a method of over-correction, securing an ultra-physiologic position of the joint, in cases of irreducible congenital luxations and in luxation fractures of the neck of the femur. The results attained encourage him to extend the scope of the intervention to healed coxitis with imperfect acetabulum formation and adduction contracture, also to arthritis deformans coxæ. The aim is to induce a habitual ultra-physiologic over-corrected abduction. This abduction is carried beyond the physiologic limits of the excursion of the joint and is combined with ultra-extension. This combined position has never yet been applied in the treatment of the above categories of defective hip-joints. The upper end of the femur is transposed forward while the limb is placed in ultra-abduction. The maneuvers are accomplished without force. He commences with modeling redressement in order to widen the sphere of abduction. The contraction of the adductors is gradually overcome by blunt, bloodless efforts. Subcutaneous tenotomy is rarely required. By sawing with the ulnar border of the hand it is possible to carry abduction almost to a right angle. Manual rhythmic tractions are the next step. The extension screw is scarcely used at all now. Extension by two assistants, one pulling on a towel wound around the ankle, supplements the pressure of the operator from above on the trochanter, and is usually amply sufficient to mobilize the upper end of the femur vertically and gain 2 or 3 cm. in length. The joint is then over-stretched, aided by elevation of the pelvis, maximal flexion of the other leg and a weight of 20 to 25 kg. If the soft parts will not yield it is necessary to do at once a subcutaneous fasciomyotomy. The resistance of the subspinal soft parts can seldom be overcome without this. The result gradually attained is that the front surface of the thigh is far behind the frontal plane, and the joint is thus in ultra-physiologic over-extension. When this has been accomplished the head of the femur is mobilized. The neck may be fractured during these maneuvers, but the bone does not separate, and the head can be brought into place just the same. The intervention concludes with the final transposition of the mobilized head forward near the spina ant. sup. This is accomplished without further resistance by extreme over-extension combined with a degree of abduction in which the previous shortening becomes over-corrected. This position of the thigh, which is not so extreme as is required for retention of an actual reposition, is maintained by a cast enclosing pelvis and thigh to the knee. The patient is enabled to walk by raising the sole of the sound foot. After three or four months he corrects the abduction nearly to a parallel position of the legs, without ever quite reaching it. The over-extension is rigorously maintained. This new position is immobilized for three or four months. The patient is then able to walk without pain or trouble and with remarkable freedom from disturbances of any kind in comparison to his previous condition. The after-treatment consists in active and passive exercises in over-extension and abduction to maintain the habitual abducted position and prevent the head from resuming its previous backward dislocation. The patient should be able to raise the limb almost to a right angle when lying on his side, and carry it back far behind the frontal plane, to demonstrate the over-extension that is possible with the nearthrosis. The results have been highly satisfactory in all cases. The patients are able to walk without disturbances and limp much less. The limb was lengthened by 1 or 2 cm. One or two years are required to ensure the function of a nearthrosis.

110. **Permanent Results of Forcible Reduction of Spondylitic Hump.**—Vulpius exhibited two patients in 1898 whom he had straightened by forcible reduction of the hump according to Calot's method. Five years have now elapsed, and he gives photographs of both, which show that the perfect results attained have been permanent. The spine is straight, although possibly a trifle shorter than normal. Joseph has explained how this can occur in such cases by the wedging into each other of the diseased vertebræ. The hump was reduced in horizontal extension, the processes of four vertebræ were resected and a cast applied to the trunk from the back of the head to the knee or thigh. One patient was 5 and the other 8 years

old at the time. In both cases there was a large abscess in the abdomen.

The Public Service.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Nov. 27, 1902:

Assistant Surgeon-General J. H. White, to proceed to Key West, Fla., for special temporary duty.

Surgeon R. D. Murray, granted leave of absence for seven days from December 7.

Surgeon John Godfrey, granted extension of leave of absence for three months from December 13.

Asst.-Surgeon Carl Ramus, granted leave of absence for one month from December 1.

Asst.-Surgeon C. E. D. Lord, granted extension of leave of absence for one month from December 6.

Asst.-Surgeon C. W. Wille, on being relieved from duty at Cape Charles Quarantine, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory.

Asst.-Surgeon J. S. Boggess, relieved from duty at Reedy Island Quarantine, and directed to proceed to Cape Charles Quarantine and assume command of the service, relieving Asst.-Surgeon C. W. Wille, to proceed to Norfolk, Va., as recorder of board for physical examination of Senior Pharmacists F. L. Brown and F. S. Goodman.

Asst.-Surgeon C. C. Pierce, detailed to represent the service at meeting of the American Public Health Association at New Orleans, December 8-13.

Asst.-Surgeon W. C. Rucker, bureau letter of Nov. 19, 1902, directing him to proceed to Reedy Island Quarantine revoked, and directed to proceed to New York, and report to Surgeon G. W. Stoner, Immigration Depot, for temporary duty.

Asst.-Surgeon A. D. Foster, to proceed to Wilmington, N. C., and assume temporary command of the service during the absence, on leave, of Surgeon John Godfrey.

Asst.-Surgeon H. McG. Robertson, to proceed to Chicago, and report to medical officer in command for duty and assignment to quarters.

A. A. Surgeon B. W. Goldsborough, leave of absence granted for twenty-one days by Department letter of October 4, amended so that it shall be for one day. Granted leave of absence for three weeks from November 20.

A. A. Surgeon E. B. Hallett, granted leave of absence for three days from November 26.

Senior Pharmacist A. M. Roehrig, to report to chairman of board of examiners at Stapleton, N. Y., for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class.

The following senior pharmacists are ordered—as Pharmacist Roehrig above—to report, for physical examination for promotion, to the chairman of the boards of examiners in the respective cities named:

John Achenbach, to report at Port Townsend Quarantine, Wash.
G. H. Brock, to report at Detroit, Mich.
E. S. Maguire, to report at Fort Stanton, N. M.
R. H. Gibson, to report at Gulf Quarantine Station.
T. V. O'Gorman, to report at New Orleans.
F. L. Brown, to proceed to Norfolk, Va., and report.
F. S. Goodman, same as Pharmacist Brown above.
Charles Miller, to proceed to Mobile, Ala., and report.
C. H. Woods, to report at Chicago.
F. R. Hanrath, to report at Cleveland, Ohio.
S. W. Richardson, to report at St. Louis.
J. V. LaGrange, to report at Chelsea, Mass.

BOARDS CONVENED.

Board convened at Washington, D. C., November 24, for the physical examination of Mr. G. M. Kohler and certain officers of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Asst.-Surgeon J. F. Anderson, recorder.

Boards convened to make physical examinations of senior pharmacists, in accordance with the provisions of Paragraph 62, Regulations, Public Health and Marine-Hospital Service, approved Nov. 21, 1902:

At Chelsea, Mass., November 27, for the physical examination of Senior Pharmacist J. V. LaGrange. Detail for the Board: Surgeon R. M. Woodward, chairman; Asst.-Surgeon W. K. Ward, recorder.

At Stapleton, N. Y., November 26, for the physical examination of Senior Pharmacist A. M. Roehrig. Detail for the Board: Surgeon Preston H. Bailhache, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

At Gulf Quarantine Station, November 27, for the physical examination of Senior Pharmacist R. H. Gibson. Detail for the Board: P. A. Surgeon S. B. Grubbs, chairman; A. A. Surgeon J. A. Moncure, recorder.

At Norfolk, Va., November 27, for the physical examination of Senior Pharmacists F. L. Brown and F. S. Goodman. Detail for the Board: Surgeon J. B. Stoner, chairman; Asst.-Surgeon J. S. Boggess, recorder.

At Chicago, November 27, for the physical examination of Senior Pharmacist C. H. Woods. Detail for the Board: Surgeon C. E. Banks, chairman; Asst.-Surgeon L. P. H. Bahremburg, recorder.

At St. Louis, November 28, for the physical examination of Senior Pharmacist S. W. Richardson. Detail for the Board: Surgeon J. M. Gassaway, chairman; A. A. Surgeon H. C. Wakefield, recorder.

At New Orleans, November 28, for the physical examination of Senior Pharmacist T. V. O'Gorman. Detail for the Board: P. A. Surgeon C. P. Wertenbaker, chairman; Asst.-Surgeon J. W. Schereschewsky, recorder.

At Cleveland, November 28, for the physical examination of Senior Pharmacist F. R. Hanrath. Detail for the Board: P. A. Surgeon H. W. Wickes, chairman; A. A. Surgeon D. P. Osborne, recorder.

At Detroit, November 28, for the physical examination of Senior Pharmacist G. H. Brock. Detail for the Board: Surgeon H. W. Austin, chairman; A. A. Surgeon R. Granberry, recorder.

At Fort Stanton, N. M., December 1, for the physical examination of Senior Pharmacist E. S. Maguire. Detail for the Board: Surgeon P. M. Carrington, chairman; Asst.-Surgeon J. W. Trask, recorder.

At Port Townsend Quarantine, Washington, December 1, for the physical examination of Senior Pharmacist John Achenbach. Detail for the Board: Asst.-Surgeon M. H. Foster, chairman; Asst.-Surgeon D. E. Robinson, recorder.

At Mobile, Ala., December 1, for the physical examination of Senior Pharmacist Charles Miller. Detail for the Board: Surgeon W. P. McIntosh, chairman; A. A. Surgeon J. G. Thomas, Jr., recorder.

APPOINTMENTS.

Holcombe McGavock Robertson of Virginia, commissioned (recess) as assistant-surgeon, Nov. 17, 1902.

Albert Douglas Foster of Michigan, commissioned (recess) as assistant-surgeon, Nov. 17, 1902.

Navy Changes.

Changes in the Medical Corps of the Navy, for the week ended Dec. 6, 1902:

Medical Director R. C. Dean, retired, ordered to Washington, D. C., for duty as president of the Naval Examining Board.

Medical Inspector S. H. Dickson, detached from the Marine Barracks, Washington, D. C., and ordered to the *Iowa*, for duty as fleet surgeon, South Atlantic Station.

Medical Inspector M. H. Simons, detached from the *Iowa*, and ordered home and to wait orders.

Surgeon M. H. Crawford, resignation accepted, to take effect Nov. 28, 1902.

P. A. Surgeon M. S. Elliott, detached from the *New York*, and to temporary recruiting duty at Pueblo, Colo., and thence to the *New York*.

P. A. Surgeon J. C. Rosenbleuth, detached from the *Wilmington*, and ordered home.

Asst.-Surgeon H. A. Dunn, detached from Cavite Naval Station and ordered to the *Vicksburg*.

Asst.-Surgeon F. A. Asserson, detached from the *Kentucky* and ordered to the *Wilmington*.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General Public Health and Marine-Hospital Service, during the week ended Dec. 5, 1902:

SMALLPOX—UNITED STATES.

California: Los Angeles, Nov. 8-22, 3 cases.
Colorado: Denver, Nov. 15-22, 10 cases.
Florida: Jacksonville, Nov. 22-29, 1 case.
Georgia: Atlanta, Nov. 19-26, 7 cases.
Illinois: Chicago, Nov. 22-29, 1 case.
Indiana: Indianapolis, Nov. 22-29, 3 cases.
Kentucky: Covington, Nov. 1-29, 64 cases.
Louisiana: New Orleans, Nov. 24-29, 1 case.
Maine: Biddeford, Nov. 22-29, 5 cases.
Maryland: Cumberland, Nov. 1-30, 1 case.
Massachusetts: Nov. 22-29, Boston, 11 cases, 9 deaths; Cambridge, 1 case; Chelsea, 1 case; Lawrence, 1 case: Marlboro, 2 cases; Newton, 2 cases; Quincy, 1 case; Taunton, 5 cases.
Michigan: Nov. 22-29, Grand Rapids, 11 cases; Detroit, 57 cases, 1 death.
Missouri: St. Louis, Nov. 23-30, 9 cases.
Nebraska: South Omaha, Nov. 23-30, 3 cases.
New Hampshire: Nashua, Nov. 22-29, 17 cases, 1 death.
New Jersey: Camden, Nov. 22-29, 1 case; Newark, Nov. 22-29, 1 case; Jersey City, Hudson County, Nov. 23-30, 1 case; Bayonne, Hudson County, Nov. 23-30, 1 case.
New York: Nov. 22-29, Binghamton, 2 cases; New York, 5 cases.
Ohio: Cincinnati, Nov. 21-28, 3 cases; Cleveland, Nov. 22-29, 15 cases, 5 deaths; Hamilton, Nov. 22-29, 1 case.
Pennsylvania: Nov. 22-29, Altoona, 1 case; Erie, 9 cases, McKeesport, 1 case; Philadelphia, 5 cases, 1 death; Pittsburg, 35 cases, 10 deaths; 4 cases imported.
Rhode Island: Providence, Nov. 22-29, 1 death.
South Carolina: Charleston, Nov. 22-29, 2 cases.
South Dakota: Sioux Falls, Nov. 22-29, 2 cases.
Wisconsin: Milwaukee, Nov. 22-29, 9 cases.

SMALLPOX—FOREIGN.

Ecuador: Guayaquil, Nov. 8-15, 1 death.
Canada: Quebec, Nov. 22-29, 1 case.
France: Paris, Nov. 8-15, 1 death.
Great Britain: Nov. 8-15, Dundee, 2 deaths; London, 2 cases; Manchester, 2 cases.
Italy: Naples, Nov. 10-17, 1 case.

YELLOW FEVER.

Colombia: Panama, Nov. 18-24, 4 cases.
Ecuador: Guayaquil, Nov. 8-15, 4 deaths.
Mexico: Tampico, Nov. 15-22, 13 deaths; Vera Cruz, Nov. 15-22, 16 cases, 11 deaths.

CHOLERA—INSULAR.

Philippines: Cebu, Sept. 29-Oct. 14, 5 cases, 2 deaths; Manila, Oct. 12-18, 19 cases, 18 deaths; Provinces, Oct. 12-18, 3,793 cases, 2,563 deaths.

CHOLERA—FOREIGN.

China: Hongkong, Oct. 21-28, 1 case, 1 death.
Egypt: Alexandria, Nov. 1-8, 1 case, 1 death.
Turkey: Gaza, Oct. 25-Nov. 1, 449 cases; Lydda, Oct. 25-Nov. 1, 75 cases; Jaffa, Oct. 25-Nov. 1, 5 cases.

PLAGUE—FOREIGN.

Africa: Cape Colony, Port Elizabeth, Sept. 25, 1 case, 1 death.
China: Hongkong, Oct. 21-28, 1 case, 1 death.
Egypt: Alexandria, Nov. 1-8, 1 death.
Japan: Yokohama, Oct. 19-Nov. 1, 2 cases.